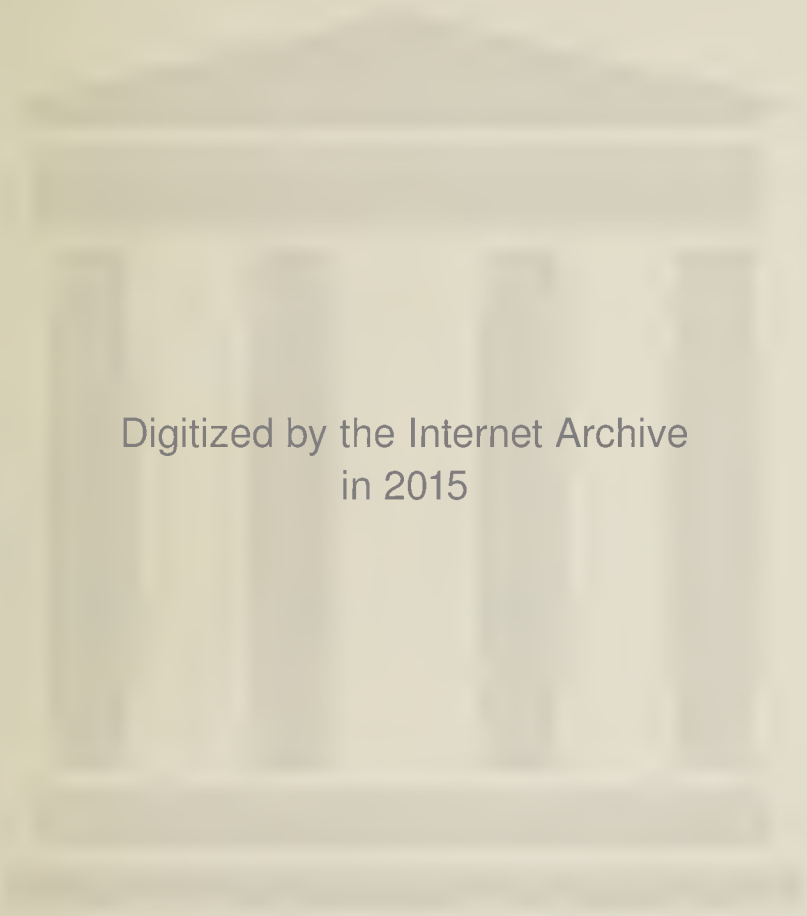

THE

STUDENT'S GUIDE

TO THE

PRACTICE OF MEASURING AND VALUING

ARTIFICERS' WORKS.

LONDON:
GEORGE WOODFALL AND SON,
ANGEL COURT, SKINNER STREET.

THE

STUDENT'S GUIDE

TO THE

PRACTICE OF MEASURING AND VALUING

ARTIFICERS' WORKS;

CONTAINING,

DIRECTIONS FOR TAKING DIMENSIONS,

ABSTRACTING THE SAME,

AND

BRINGING THE QUANTITIES INTO BILL;

WITH

TABLES OF CONSTANTS,

AND COPIOUS MEMORANDA FOR THE VALUATION OF LABOUR AND MATERIALS IN THE RESPECTIVE TRADES, AS FOLLOWS:

BRICKLAYER AND SLATER.
CARPENTER AND JOINER.
SAWYER.
STONE-MASON.
PLASTERER.
SMITH AND IRONMONGER.
PLUMBER.
PAINTER AND GLAZIER.
PAPER-HANGER.

ILLUSTRATED WITH EIGHT PLATES AND TWO WOODCUTS.

BY A LATE EMINENT SURVEYOR.

LONDON:
JOHN WEALE,
ARCHITECTURAL LIBRARY, 59, HIGH HOLBORN.

1843.

ADVERTISEMENT.

The following Work was originally written expressly for the rising student by an eminent Architect and Surveyor of upwards of fifty years' experience, but the manuscript having been left at his recent death in an imperfect state, it has been carefully arranged for publication, with much additional matter, by Mr. Edward Dobson, who was educated in the office of an active measuring surveyor, and who is the author of "A Statistical Account of the Railways of Belgium," to whom I am also indebted for the correction of the proofs.

It is anticipated that this volume will fill the wide space between the student and the practical man, by removing the perplexing difficulties which hitherto have been a barrier to his advancement, and which can be appreciated only by those who aspire to be correct and efficient men of business, in the profession that they may desire to follow.

JOHN WEALE.

May 23, 1843.

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THE PRACTICE

OF

MEASURING AND VALUING ARTIFICERS' WORK.

PRELIMINARY OBSERVATIONS.

The Author, having retired from the profession, has been enabled to devote considerable time to the preparation of the present work, which is intended for the information of the young student, in a department which, in some respects, is not the most pleasant part of the architect's duty; more particularly when it is one to which he does not feel himself perfectly competent, which is the case if he has not had the opportunity, or has neglected to avail himself of the means of obtaining the requisite information. It is therefore strongly recommended to the student, that, after he has acquired sufficient knowledge of construction for making out working drawings correctly, he should attend to the rules by which, in due time, he may become qualified to measure and value the work when performed. The disinclination often felt by young gentlemen of education for the study of these rules, and of the mechanical part of the profession, make it the more necessary to impress on their minds the absolute necessity of study-

ing these essential qualifications,—which can only be done, with any probability of success, by commencing at the lowest, and rising gradually to the higher departments. If the student neglects the operative part, he must never expect to be capable of making working drawings without incurring the ridicule of the mechanic; and when he commences business on his own account, if he also neglects the measuring department, he will be obliged to employ persons to make out his specifications, and to measure and value his works when completed. The expense incurred by thus employing others to do what he is incapable of, is a minor consideration, for it is imperative on the young architect to reflect that he will be the responsible agent between the gentleman and the builder, and that if during the erection of an edifice, he allows the work to be insecurely performed, or suffers his employer to be imposed on, not only is his character at stake, but he is also amenable by the laws of his country (and very properly); so that following the profession of an architect, not being duly qualified, may be attended with the most serious consequences: for whether an architect allows his employer to suffer from inattention on his own part, or from the ignorance or dishonesty of the persons employed by him, it is precisely the same in effect, he being professionally employed, and receiving his commission on the cost of the building, which is paid him for designing, directing, and superintending its construction, and seeing that the whole is performed in a proper and workmanlike manner, examining and passing the accounts, and making every arrangement for their final settlement. Consequently, in case of failure in any respect, he is answerable, from whatever cause it may arise, except the improper interference of his employer. Independently of this serious responsibility, if he does not qualify himself in the opera-

tive part, it is impossible that he can ever follow his profession with any comfort or satisfaction. Even in passing over or through his own buildings, he is obliged to be most careful of giving any directions, fearful lest he should commit himself before the common mechanic, who very soon discovers if the architect has practical knowledge, and consequently in what manner the work may or must be done, and acts accordingly.

It may be stated that architects of extensive practice cannot attend to all these things themselves. True; but be it remembered, that young men do not very soon get into such practice, particularly if they are not well qualified; and when they do, it is the more essential that they should perfectly understand the practical part of their profession,—that they may select proper assistants, and having chosen them, that they should know from their own experience if they perform their duty with ability and integrity.

This treatise was commenced originally for the purpose of giving the pupils studying under the author, who had an extensive country practice, a correct idea of measuring, abstracting, bringing into bill, and valuing the different artificers' works, agreeably to the methods considered by London surveyors as the most correct and expeditious. The great talent and extensive practice of metropolitan surveyors, must be allowed as sufficient authority for concluding that the rules laid down by them are superior to any others that can be adopted. Independent of which, it being the practice for the architect, or his clerk or surveyor, to meet the surveyor appointed by the tradesman to take the dimensions, abstract their contents, make out the quantities into bill, and value the work together, it is absolutely necessary that a regular system should be adopted and strictly

adhered to in every part of the business, or much confusion would arise, as is generally the case whenever London surveyors have to meet country practitioners; and it is consequently of the utmost importance to establish the same system throughout the kingdom. The great improvements made in travelling, and the velocity with which we are now conveyed, will soon place every part of this country within a few hours' journey from the metropolis; and the natural consequence of these increased facilities of communication must be, that our habits and methods of doing business will proportionally assimilate.

It is not intended, in this part of the work, to explain the methods of manufacturing any materials, as bricks, tiles, &c., or the methods of performing the respective works, except so far as to enable the young student to describe the work which he is about to measure, and to ascertain if it be executed in a proper and workmanlike manner. But a perfect knowledge of this department can only be obtained by great attention, perseverance, and practice. The method is shewn of valuing all the leading articles in each trade, by first ascertaining the fair price to be allowed for the materials, according to the prime cost thereof, and by adopting what the author considers the ne plus ultra, viz. a decimal; by which, if correctly ascertained, the amount of labour thereon at all periods may be immediately found, by multiplying that decimal by the rate of wages allowed: this is the only method by which perpetual prices can be formed. Materials and labour are continually, but not proportionally fluctuating, consequently the value of work can only be determined by first ascertaining the cost of the materials expended, and making the requisite allowances for profit and waste, and then the amount of labour in executing it.

As the tradesmen's bills must be passed and signed by the architect, the prime cost of materials may in most instances be obtained without much difficulty, and in all cases may be demanded before he allows the prices charged. The quantities required per rod, perch, square, or yard, according to the description of work, the architect ought, agreeably to certain rules, to be capable of determining. But many difficulties arise, and the greatest attention is requisite to ascertain correctly the fair average of time to be allowed between the common and the best workmen, and also between what men can, and what they will do. The decimal must therefore be calculated agreeably to our respective judgments, and from the best information we can obtain; the correctness of which depends on the attention we have paid to the subject, and the opportunities we have had of arriving at our conclusions. Those which are now submitted to the public will be found as correct as they can be made in the compilation of a work like the present. It is anticipated that the professional man may, in his advice to the student, be induced to place this subject properly before him, and establish rules by which every description of work may be valued, according to the prime cost of materials and the rate of wages, at any time and place when and where the work has been performed.

ON MEASURING.

In order to illustrate the principle of measuring the different artificers' works, drawings of reference are given, as the only means of conveying to the architectural student, who has never attended to the admeasurement of work, the correct method of proceeding. The description

of book generally used for measuring is shewn, with lines ruled according to the old practice; few modern surveyors, however, think of ruling the columns for the dimensions, any more than they would rule lines to write by, it not being more requisite to those who are in the constant practice of measuring work; but it is always customary to insert the date and the name of the person met, and also for whom, and where the work is done, in the manner hereafter described.

In entering dimensions in the measuring book, observe that the number of times is always stated on the left of the dimensions, and in measuring brickwork the number of bricks in thickness on the right side, leaving another space or column for the amount the dimensions square to. Also be particular in entering the wastes in the book, that is, the manner in which the length and width of each dimension is made out, which is frequently done by collecting several together; and likewise the particular situation of the work; so that the student may be able to account for or make out how every dimension was taken, should any misunderstanding arise at a distant period, and he be called upon to give the necessary explanation respecting the way in which he has taken the work; he will then be as ready and quick as it is necessary to be correct.

ABBREVIATION.

Every method that can be adopted to expedite the taking of dimensions with accuracy is most desirable. It is recommended to the young student to attend to the following practice; viz., using a kind of shorthand or abbreviation in describing the different works, which greatly facilitates the operation, and gives time for more

attentively observing the measuring rods, to know from ocular demonstration that the dimensions are taken and called correctly; which all who have had much practice in measuring find to be very essential in correcting inaccuracies, from whatever cause they may occur. Although it may appear that this method of adopting initials is not sufficiently explanatory, they will, with a very little practice, be read and understood with as much ease and certainty as if the words were written at full length. In this, as in the other departments, details are given to each respective trade.

ROTATION.

No profession can be successfully pursued without adopting a regular system; and in no department is this more essential than in measuring the multifarious works in a building, which can only be accomplished with any degree of accuracy by invariably taking the respective works in regular succession, by which it is scarcely possible to omit any part of the work, which would constantly occur if some positive and undeviating rule were not attended to. In the following pages, the regular rotation to be adopted in measuring each particular description of work is given under the heads of the respective trades.

ON ABSTRACTING,

AND BRINGING THE QUANTITIES INTO BILL.

The form of the abstract is drawn out for each trade, and also the rotation that should be observed in placing the particular kinds of work, which, if constantly attended to, will greatly facilitate the operation, as it is always known

in what part of the abstract any description of work will be found; this more particularly alludes to the abstract for carpenters and joiners' work, where there are so many different heads, as to make it absolutely necessary to pay the greatest attention to their order and regularity. This and the peculiarities to be attended to in each trade, are more particularly described at the commencement of their respective abstracts. The student is to observe that, before he begins to take out the quantities, he prepares the abstract, by considering what articles he will have, and writes the heads of them in their proper columns, according to the rotation to be observed in bringing them into bill. On this subject examples are given in each trade; but the general rule to be attended to in such trades, where some of the work is valued by the rod, perch, yard, or square, is to place these first, and next the work valued by the cube foot, commencing with the quantities on which there is the least labour, and so in regular rotation to those that have the most. Next proceed with the articles that are valued by the superficial foot, commencing with the lowest, and, as before stated, to those of most value; having entered all those by the foot superficial, then take those by the foot run in a similar manner, and next those that are numbered, as is more particularly described after their respective abstracts.

VALUATION.

In entering on this department, it is imperative to impress on the mind of the young student the absolute necessity of being circumspect and correct. If he intends to maintain his independence and be respected, he must make a point of conscientiously doing his duty with strict integrity; to accomplish which it is not only essential

that he be honest in his intentions, but that he should be qualified for the business he undertakes. Whether an act of injustice arises from ignorance or intention, it is precisely the same in effect; it therefore behoves him on every account to be qualified for acting on his own judgment. But he cannot consider himself competent to measure and value artificers' works, unless he understands the nature of that work, the manner in which it is executed, the time required to perform the same, and can ascertain the prime cost of the materials used thereon at the period when the work was done. It is only possible to state the time and materials that should be expended in the several works taken on an average, but which will vary according to the description and execution thereof, both as regards the materials used and the ability of the workmen employed. It is the duty of the architect to take all these circumstances into consideration before he affixes a value on the work; consequently, in this department, the greatest care, attention, and judgment are requisite, to do justice to all parties. To give the student the necessary impetus for acquiring these essential qualifications, was the author's principal motive in offering this work to the aspirant.

CONSTANTS OF LABOUR.

These constants represent the time requisite to perform a given quantity of work, of the kind specified, in days and decimal parts of a day; the factor to be applied, being the rate of wages per diem for one or more men, according to the nature of the work.

These decimals are calculated, in all the trades, for the price per day allowed the master in his day bills, consequently with his profit thereon, being the only rate that

can be ascertained, the master of course paying each man per week according to his abilities and industry; therefore the full value of the labour, including the master's profit, will be found by multiplying the decimal by the rate of wages, as shewn in their respective tables. Likewise, in all cases it must be understood that the prices stated in the tables for labour and nails include fixing; and when added to the price of deals, calculated as shewn in page 64, will give the value of the work fixed complete, including labour, nails, and materials, according to the prime cost of materials and rate of wages allowed.

BRICKLAYER AND SLATER.

BRICKLAYER.

TECHNICAL TERMS.

In the erection of walls, when the bricks are laid longitudinally, they are called *stretchers;* when laid transversely, they are denominated *headers.*

Old English Bond is when stretchers only are laid in one course, and headers in the next, and in like manner, headers and stretchers in each alternate course, in which case it is requisite to place quarter bricks to break the joints ; when these are introduced they are called *closers.*

Flemish Bond is when headers and stretchers are placed alternately in each course, which disposition is not so strong, and considered inferior in every respect except appearance, and even in this the difference is so trifling as scarcely to be noticed, especially if laid in the English manner, with the same attention and neatness.

Those who wish to investigate more minutely the respective merits of each method, are recommended to consult an excellent Treatise on Brick Bond, written by Mr. George Saunders.

Pargetting is plastering the inside of chimney flues with mortar made with cow-dung.

Gauged work is when the bricks are cut and rubbed to a particular gauge, as for arches over windows or other openings, and set with fine mortar.

Dry steening is brickwork laid dry round wells, to keep the ground from falling in.

Flat joint pointing is when the mortar in the joints is well raked out and filled in again with blue mortar, and the courses are marked with the edge of the trowel.

Tuck and pat pointing is when, in addition to the above, plaster is inserted in the joints, with a regular projection, and neatly pared to a parallel width.

Outside splays, as cut and rubbed to shew fair. See Plate 1, fig. Q.

Inside splays, only rough cut to batten or plaster against. See Plate 1, fig. P.

Brick bird's mouth, is notching. See Plate 1, fig. O.

Bricks for building, by act of parliament, are not to exceed, from the mould, 10 inches long, 5 inches wide, and 3 inches thick, without incurring an additional duty; but they always shrink considerably in burning, so that when delivered they seldom exceed $8\frac{3}{4}$ inches long, by $4\frac{1}{2}$ inches wide, and $2\frac{1}{2}$ inches thick.

The standard measure for brickwork in London is the rod of 16 f. 6 in. square, which dimension being multiplied into itself produces 272 f. 3 in., but the odd 3 inches are never taken into account. It is therefore always considered as 272 superficial feet, at $1\frac{1}{2}$ brick, or $13\frac{1}{2}$ inches thick, or 306 feet cube, viz.: 272 f. by 1 f. $1\frac{1}{2}$ in. All the other thicknesses are reduced to this standard, as shewn hereafter in the manner of taking the dimensions and abstracting the work.

In measuring bricklayers' work, it is usual to begin by taking the excavations; first, for the basement story, if any, which is stated as digging and throwing out or wheeling away; the ground for sunk stories, according to circumstances; next, the excavations for footings to walls.

It is customary, in taking the digging to footings of walls,

to allow about 6 inches on each side, over and above the thickness of the walls, for room to work them; but if they are deep, and the ground bad and loose, allow 9 inches on each side on account of its falling in. But in sunk stories only allow to the extent of the footings, except in very loose ground.

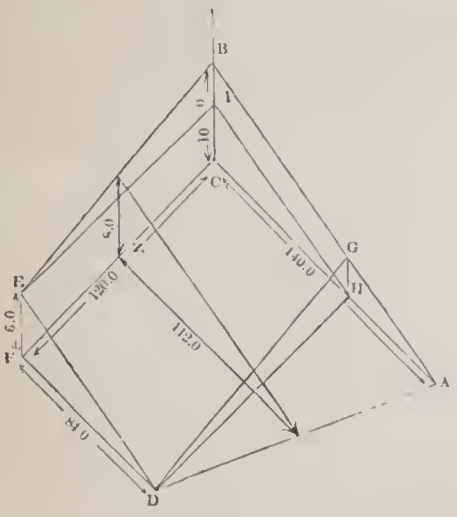
In taking the dimensions, the length, depth and width must be measured as before described, and reduced to the yard cube of 27 feet, viz.: 3 f. by 3 f. by 3 f.

Claying of Vaults, by the yard square of 9 feet, describing the thickness, 3 f. by 3 f.

In measuring digging in sideling ground, where the areas of the two ends of the excavation are unequal, the cubic content must be found by the following rule:—

Multiply the sum of the extreme areas, plus four times the middle area, by one-sixth of the length, and the product will be the answer required.

EXAMPLE.—To find the cubic content of the excavation A B C D E F for the sunk stories of a house, to be built on the side of a hill:—



$$\frac{140 \times 10}{2} = 700$$

$$\frac{84 \times 6}{2} = 252$$

952 sum of extreme areas.

$\frac{112 \times 8}{2} = 448 \times 4$ 1792 four times middle area.

2744

120 length.

54880

2744

6)329280

27) 54880(2032 yards 16 feet.

54

88

81

70

54

16

As an illustration of the correctness of the rule, let us take the same example on a different principle of measurement. The solid A B C D E F may be divided into the two prisms G H I B E D and E F C I H D and the pyramid D A H G. Taking each of these separately we have—

Prism G H I B E D $= \frac{84 \times 4 \times 120}{2} = 20160$

Prism E F C I H D $= \frac{120 \times 6 \times 84}{2} = 30240$

Pyramid D A G H $= \frac{(\frac{56 \times 4}{2}) \times 120}{3} = 4480$

54880 cubic feet.

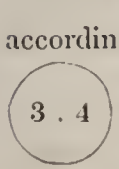
or, 2032 yards 16 feet, as before.

In measuring brickwork always begin with the foundations, then proceed with measuring each story separate (or as high as the wall continues of the same thickness), as solid work, according to their respective thicknesses; then add for all projections, as breasts of chimneys, &c., deducting the openings, but not the flues, as the extra trouble and the pargetting is deemed equivalent to the deficiency of materials; but deduct the openings of doors, windows, &c.

In measuring for labour only, the face of the work is girt, to pay for the extra labour of plumbing the angles, and working the returns fair.

If the house or building be square, measure the front and back walls the whole length of the external face, and the return walls must be taken perpendicularly from the interior sides, or back of the front and back walls.

In measuring walls that are faced with superior bricks, the walls are first measured as common work, and then the superficial quantity of facing is taken, as hereafter shewn, and is valued by considering the facing as two thirds of a brick thick, and deducting the common brickwork from the price thereof, the same thickness, viz.:— two thirds of a brick, by which the value per foot superficial, is ascertained.

In measuring circles, or semicircles, they are marked accordingly in the measuring book. Thus: 

or

with the diameters figured.

To measure angle chimneys, draw lines on the floor, parallel to the two sides of the room, cutting the parts intersected by the chimney, as shewn in the plans, Plate 1; take either side by the height of the floor, and half the other (the work forming a triangle) for the thick-

ness, either as the number of bricks, or as cube work, which by the directions before given, and the example shewn in the first chimney taken, proves it to be exactly the same; consequently, if the projection should not amount to any certain number of half bricks, it would be best to take it as a cube dimension. In all cases it is supposed that the walls, as shewn by the dotted lines, are measured before the projecting chimneys are taken, which is the usual custom.

In taking the dimensions of vaults, measure the abutments, or side walls, to the springing of the arch, then bend your rods round the soffit of the arch, and add once and a half the thickness thereof, by which you obtain the average girt of the arch; then take the length clear of the walls; but if the arch is turned over one or both walls, add the thickness thereof to the length of the arch. But in taking the height of the walls, measure to the crown of the arch, without making any deduction for the declivity of the arches, on account of the additional trouble and waste of bricks, in cutting and fitting them to the curved soffit of the arch. Likewise in deducting openings with circular heads, the dimensions should only be taken to the springing of the arches, on account of the trouble and waste of bricks in fitting them to the arches.

Drains to be taken and reduced as common brickwork if built with mortar.

Shafts of chimneys are measured as solid work.

Ovens and coppers are measured as solid cube brickwork, deducting the ash-holes only *. Tiles, Welsh lumps, and fire bricks, are to be allowed as extras.

In these, or any other brickwork that it is considered

* This method is in common use amongst surveyors, but it would be far more consistent to measure the actual quantity of brickwork, allowing for the extra labour in price.—Ed.

best or most convenient to measure by the cubic foot, multiply the solidity by 8, the number of $1\frac{1}{2}$ inches in a foot, and divide it by 9, the number of $1\frac{1}{2}$ inches in $13\frac{1}{2}$ inches, which will reduce it to the standard of $1\frac{1}{2}$ brick, or $13\frac{1}{2}$ inches in thickness.

In measuring brickwork no allowance is to be made in quantity for small or difficult works. Timbers inserted in the walls are not to be deducted. When plates are bedded in the walls, two inches to be allowed for ditto where no brickwork is over them. All sills and stone strings are measured in.

All cuttings to be measured superficial; as outside splays, cut and rubbed to shew fair, or inside ditto rough cut for battens, &c. See Plate 1, figs. P. and Q.

Birds' mouths at per foot run, being notched to fit. See Plate 1, fig. O.

Facings of all descriptions to be measured extra by the foot superficial; in which case the reveals are also measured, except where intended to be stuccoed.

Gauged arches to doors, windows, &c., are also measured by the foot superficial.

Groins are measured as common work, only taking the run of cut groins at per foot.

Tiling.—Plain and pan tiling to be measured by the square of 100 feet.

In measuring plain tiling,

Allow for the eaves 4 inches extra.
Ditto for dripping do. 6 inches extra.
Ditto for all cuttings, hips, &c., 3 inches extra.
Ditto for valleys 12 inches extra.

In measuring pan tiling,

Allow for the barge per foot run.
Ditto for heading to barge per foot run.

Allow for cutting to hips and splays per foot run.

Ditto for hips and ridges per foot run.

Number the hip hooks, which should be painted three times in oil.

Ditto T nails, ditto.

Deduct for chimneys, and deduct and add for dormers.

If the roofs are hipped, take the length at the bottom of the sides, and not measure the end; the two side triangles being equal to the hipped end one.

Bricknogging by the yard square of 9 feet, including the timbers.

Brick paving, ditto, ditto.

Facias, beads and quirks, dentel or plain cornices, &c., measured and valued by the foot run.

In order to illustrate the principle of measuring and making out bricklayers' work, and bringing it into bill, in Plate 1, is given a plan, elevation, and section of the front wall of a house, with the windows to a larger scale, and also plans of different chimneys. The rules before stated are likewise explained, by shewing the manner of taking the dimensions in the measuring book, and the method of preparing the abstract, and entering them therein, together with other imaginary quantities, to make the particular manner of abstracting the work perfectly clear and explicit.

See the general rules under the head Measuring, viz.—

BRICKLAYERS' WORK done for A. B., Esq., at his house, Kensington,
By C. D.

Measured January 1st, 1843, with Mr. E. F.

ft.	in.	bks.	ft.	in.			ft.	in.	
							26	0	front of house.
27	6	5	13	9	Brick footing, 2 bottom courses.		0	9	projec. of footings.
0	6						0	9	do. other end.
					27 6				
					Figs. C and K.		27	6	
26	9	4	20	1	Do. average thickness of the courses above do.		26	0	
0	9						0	9	½ B. at each end.
					80 4		26	9	
26	0	3	234	0	B. W. above do. to under side of ground floor.		0	6	under floor.
9	0						8	6	height of story.
					468 0		9	0	
2) 5	0	½	35	0	DD^t. openings		5	0	
3	6				17 6		0	4½	upper reveal.
2) 5	4½	2½	45	8	DD^t. reveals	Windows	5	4½	
4	3						3	6	
							0	9	2 side reveals.
2) 4	3	2	29	9	DD^t. backs		4	3	
3	6				59 6				
7	6	½	26	3	DD^t. openings				
3	6				13 2	Door.			
7	10½	2½	33	5	DD^t. reveal				
4	3								
26	0	2½	338	0	Add B. W. to ground floor.		1	0	thickness of floor.
13	0						12	0	height of room to under side of one pair floor.
							13	0	
2) 7	6	½	52	6	DD^t. openings				
3	6				17 6				
2) 7	10½	2	66	11	DD^t. reveals	Windows.			
4	3				133 10				
2) 4	3	1½	21	3	DD^t. backs				
2	6								

ft.	in.	bks.	ft.	in.	
10	0				
3	6	½	35	0	DD^{t}. opening 17 6 — Front door.
10	4½				
4	3	2	44	1	DD^{t}. reveal 88 2 — Front door.
26	0				
13	0	2	338	0	Add B. W. to one pair floor. 676 0

ft.	in.	
1	0	thickness of floor.
12	0	height of room.
13	0	

3) 8	0				
3	6	½	84	0	DD^{t}. openings 28 0 — Windows.
3) 8	4½				
4	3	1½	106	9	DD^{t}. reveals — Windows.
3) 4	3				
2	3	1	28	8	DD^{t}. backs — Windows.
26	0				
9	11	1½	257	10	Two pair floor, B. W. to under side of tie-beam.
3) 5	6				
3	6	½	57	9	DD^{t}. opening 19 3 — Windows.
3) 5	10½				
4	3	1	74	11	DD^{t}. reveal — Windows.
3) 4	3				
2	9	½	35	1	DD^{t}. backs 17 7 — Windows.
26	0				
3	2	1	82	4	Add B. W. to parapet to underside of coping.

In making deductions for revealed windows, if the wall is only one brick thick, take one reveal in and one out, as follows;

5	8½				
3	10½	1	22	0	DD^{t}. upper windows, suppose wall only 1 brick, and the window openings of the annexed dimensions . . . . .

ft.	in.
5	0
3	6

MEASURING CHIMNEYS.

The height of the rooms supposed to be 10 feet.
Do. of the chimney openings, 4 feet.

(See Plate No. 1.)

ft.	in.	bks.	ft.	in.	
10	0				
4	6	3	45	0	B. W. to angle chimney.
			90	0	
4	0				
3	6	2	14	0	DD^{t}. opening.
			28	0	
10	0				
4	6				
2	3		101	3	Cube B. W. to angle chimney. I.
10	0				
9	0	3	90	0	B. W. to angle chimney. L.
			180	0	
4	0				
3	6	2	14	0	DD^{t}. opening.
			28	0	
10	0				
5	6	1	55	0	B. W. to chimney breast. M.
4	0				
3	6	2	14	0	DD^{t}. opening.
			28	0	
10	0				
4	9	5	47	6	B. W. to angle chimney. N.
			95	0	
10	0				
4	0	2	40	0	DD^{t}. B. W. angle.
4	0				
3	6	2	14	0	DD^{t}. opening.
			108	0	
			54	0	

ft.	in.	
101	3	This, though taken before, is entered again to shew the manner of abstracting cube B. W.
	8	
9)810	0	
90	0	red. to 1½ br. th.

All gauged work is first measured in with the common brickwork, and afterwards taken at per foot superf. measured as follows.

3	6		
0	4	1 2	soffit to gauged arches.
3	10		
1	0	3 10	face of ditto.

(See Plate 1, fig. G.)

ON ABSTRACTING.

In abstracting bricklayers' work, although it will be found advantageous, it is not so absolutely requisite to observe a regular rotation, as in joiners' work. But particular attention is required in abstracting bricklayers' work, to place the contents of the dimensions, according to their different thicknesses, and the deductions thereon, so that they may be reduced to the proper standard or thickness (of one brick and a half or thirteen and a half inches) in the abstract; which will be perfectly easy after considering the explanation given and seeing the form of the following abstract.

Place the cube brickwork in the first columns.	One column for one brick thick One do. for one and a half do.	Add.
	One do. for one brick thick. One do. for one and a half do.	DD^{t}.

By which method you may abstract brickwork to any thickness. Thus:—

If half a brick thick, one half the quantity may be placed under the head of one brick, or one-third the quantity, under the head of $1\frac{1}{2}$ brick.

If two bricks in thickness, twice the quantity may be placed under the head of one brick.

If two and a half bricks in thickness, the same quantity must be placed under the heads of one brick and also under $1\frac{1}{2}$ brick.

If three bricks in thickness, twice the quantity must be placed under the head of $1\frac{1}{2}$ brick.

In this manner brick walls of all thicknesses may be abstracted under two heads, and thereby avoid having a column for every thickness of wall in the building.

Next proceed with the different descriptions of tilings and all other work measured by the square of 100 feet.

Next the pavings, bricknogging, and other work measured by the yard square of nine feet.

Next the work measured by the foot superficial; and next with the work measured by the foot run; as shewn in the following abstract.

The following are imaginary dimensions, to explain the manner in which walls of any number of bricks in thickness may be abstracted under the two heads of one brick and one brick and a half. These being the general thicknesses of walls, it very seldom occurs that the walls are of the thicknesses here stated, which are only given to make the principle understood.

					To be abstracted as			
ft.	in.	bks.	ft.	in.	ft.	in.		bks.
5	6	½	12	4	6	2	.	1
2	3							
7	6	1	42	6	42	6	.	1
5	8							
10	3	1½	69	2	69	2	.	1½
6	9							
8	6	2	52	5	104	10	.	1
6	2							
10	0	2½	45	0	45	0	.	1½
4	6				45	0	.	1
9	0	3	47	3	94	6	.	1½
5	3							

					To be abstracted as			
ft.	in.	bks.	ft.	in.	ft.	in.		bks.
8	0	3½	50	8	50	8	.	1½
6	4				101	4	.	1
7	6	4	28	1	112	4	.	1
3	9							
12	6	4½	45	10	137	6	.	1½
3	8							
10	6	5	54	3	271	3	.	1
5	2							
8	4	5½	31	3	31	3	.	1½
3	9				125	0	.	1
10	10	6	59	7	238	4	.	1½
5	6							

Abstract arranged as before stated.

ABSTRACT OF BRICKLAYERS' WORK done for A. B. by X. Y.

Abstracted with Z. January 1st, 1843.

RODS.								SQUARES.		YARDS.				FEET.		Nos.
Cube B. W.				Superficial B. W.				Tiling.		Paving.						
Add.		DDt.		Add.				DDt.								
				1 Bk.		1½ Bk.		1 Bk.		1½ Bk.																			
ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	Plain.	Pan.	Grey Stock.	Dutch Clinkers.	Brick-nogging.		Super.		Runs.		
101	3			27	6	27	6	17	6	45	8											
				80	4	468	0	45	8	33	5											
				338	0	338	0	59	6	17	6											
				676	0	257	10	13	2	21	3											
				82	4	90	0	33	5	28	0											
				55	0	180	0	133	10	106	9			Common Bricks.	10 inch Tiles.							
				95	0	95	0	17	6	19	3											
				6	2	69	2	88	2													
				42	6	45	0	23	8													
				104	10	94	6	74	11													
				45	0	50	8	17	7													
				101	4	137	6	28	0													
				112	4	31	3	28	0													
				271	3	238	4	28	0						12 inch Tiles.							
				125	0			108	0													
These columns are to be added up, subtracting the deductions from the additions, and the remainder is to be reduced to the standard thickness of 1½ brick, and brought into rods of 272 ft. 3 in. superficial.																						

If different sorts of bricks are used, separate heads must be formed in the abstract, each detailing the various proportions and descriptions of the work.

ROTATION

To be attended to in bringing the quantities into Bill.

Bricklayer.

Yds.	ft.	in.	
			Cube of digging according to description, viz., throwing out, basketing, wheeling, or carting away, according to the distance . . . . .
			Cube of concrete to foundation, or otherwise . . .
Rods	ft.	in.	
			Reduced brickwork, if stock bricks, if part with other bricks, their proportions, &c.
			Do. do. to garden walls . .
			Or whatever way the work may be done at per rod.
Sqres.	ft.	in.	
			Pan tiling, if dry or pointed inside or out . . . .
			Plain tiling, if double fir laths and wrought nails, &c. .
			Or other articles by the square.
Yds.	ft.	in.	
			Bricknogging, flat or on edge
			Brick paving, . do. . .
			10 in. or 12 in. tile paving .
			Pebble paving . . . . .
			Or other articles by the yard superf.

ft.	in.			
		Superf. of gauged arches .		
		Malm facings, either as best or second		
		And other articles at per foot superf.		
		Run of cut splays or birds' mouth, &c.		
		And all other articles at per foot run, and then the articles numbered, as chimney-pots, hip-hooks, &c., &c.		

VALUATION OF BRICKLAYERS' WORK.

CALCULATION OF MATERIALS.

Digger.—27 cubic feet, or one cubic yard, is called a single load, and contains 21 striked bushels. Two cubic yards = one double load.

In estimating the cubic content of excavation required to form a given amount of embankment, due regard must be paid to the nature of the soil of which the embankment is to be formed.

The following may be safely taken as average rates of the alteration in bulk of various soils when excavated and carried into embankment.

Clays.—Compression about one-tenth of the original bulk in excavation.

Gravels.—Compression about one-twelfth of the original bulk in excavation.

Sand occupies the same space in bank as in excavation.

Chalk.—Slight increase of the original bulk in exca-

vation, proportionate to the size and hardness of the fragments.

Rock.—Increase about one-half of the original bulk in excavation, according to the size of the fragments.

23½	cubic feet of sand	weigh	one ton.
21¾	do.	gravel	do.
17	do.	clay	do.
13	do.	chalk	do.
18	do.	night-soil	do.

Night-soil is removed in carts containing 45 cubic feet, or 2½ tons.

Concrete is made of ground stone lime, and sharp gravel, with a proper proportion of sand, mixed in the proportion of five or six parts of gravel to one of lime, according to the nature of the lime and the proportion of sand mixed with the gravel. Its quality is much improved by the addition of smiths' ashes or any material containing iron; and for this reason ferruginous gravel is to be preferred whenever it can be obtained.

A cubic yard of concrete, containing 27 cubic feet when mixed, requires 34 cubic feet of gravel, sand, and lime. Therefore, at the proportion of six of gravel to one of lime, a cubic yard of concrete will require 1.1 cubic yard of gravel and sand and three bushels of lime.

Concrete expands slightly in slaking; but this expansion is too trifling to be taken into account in framing an estimate.

SIZE AND WEIGHT OF VARIOUS ARTICLES.

	Length.		Breadth.		Thickness.		Weight.	
	ft.	in.	ft.	in.	ft.	in.	lbs.	oz.
Stock bricks . . . each .	0	$8\frac{3}{4}$	0	$4\frac{1}{4}$	0	$2\frac{1}{2}$	5	0
Paving do. . . . do. .	0	9	0	$4\frac{1}{2}$	0	$1\frac{3}{4}$	4	0
Dutch clinkers . . do. .	0	$6\frac{1}{4}$	0	3	0	$1\frac{1}{2}$	1	8
12 inch paving tiles do. .	0	$11\frac{3}{4}$	0	$11\frac{3}{4}$	0	$1\frac{1}{2}$	13	0
10 inch do. . . do. .	0	$9\frac{3}{4}$	0	$9\frac{3}{4}$	0	1	8	9
Pan tiles . . . . do. .	1	$1\frac{1}{2}$	0	$9\frac{1}{2}$	0	$0\frac{1}{2}$	5	4
Plain tiles. . . . do. .	0	$10\frac{1}{2}$	0	$6\frac{1}{2}$	0	$0\frac{5}{8}$	2	5
Pantile laths, per 10 ft. bundle	120	0	0	$1\frac{1}{2}$	0	1	4	6
Ditto, per 12 ft. bundle . .	144	0	0	$1\frac{1}{2}$	0	1	5	0
A bundle contains 12 laths.								
Plain tile laths, per bundle .	500	0	0	1	0	$0\frac{1}{4}$	3	0
Thirty bundles of laths make a load.								

A bricklayer's hod measures 1 ft. 4 in. × 9 in. × 9 in. and contains 20 bricks.

A single load of sand is 27 cubic feet, or one cubic yard.

A double load of sand is 54 cubic feet, or two cubic yards.

A measure of lime is 27 cubic feet, or one cubic yard, and contains from 16 to 18 bushels.

QUANTITIES, ETC.

A rod of brickwork measures 16 ft. 6 in. × 16 ft. 6 in., or 272 ft. 3 in. superf., $1\frac{1}{2}$ brick or $13\frac{1}{2}$ in. thick, called the standard thickness, or 306 cubic feet or $11\frac{1}{3}$ cubic yards.

A rod of brickwork laid to a 12 inch gauge, i. e. four courses to measure one foot in height, requires 4353 stock bricks.

Ditto, laid to $11\frac{1}{2}$ inch gauge, requires 4533 stock bricks.

A foot of reduced brickwork requires 16 bricks.

These calculations are made without allowance for waste; and indeed there is very little, as nearly every part is worked in, and much space is occupied by timbers, flues, &c., for which no deduction is made in measurement, and therefore in the erection of dwelling-houses, containing flues and bond timbers, 4300 stocks is quite sufficient, and this is the usual number allowed for a rod of brickwork.

5370 stocks to the rod, if laid dry.

4900 do. in wells and circular cesspools.

A rod of brickwork, laid four courses to gauge 12 inches, contains 235 ft. cube of bricks and 71 ft. cube of mortar; and the average weight is about 15 tons.

A rod of brickwork requires $1\frac{1}{2}$ cubic yard of chalk lime and three loads of sand; or one cubic yard of stone lime and $3\frac{1}{2}$ loads of sand; or 36 bushels of cement and 36 bushels of sharp sand.

A cubic yard or load of mortar requires nine bushels of lime and one load of sand.

The proportion of mortar or cement, when made up, to the materials in their unmixed state, is as two to three.

Facing requires 7 bricks per foot superficial.

Gauged arches 10 do. do.

Bricknogging per yard superficial, requires 30 bricks on edge, or 45 laid flat.

PAVING.

Description.		Number required.
Stock bricks, laid flat . . .	per yard .	36
Do. . . . . on edge .	do. .	52
Paving bricks, laid flat . . .	do. .	36
Do. . . . . on edge .	do. .	82
Dutch clinkers . do. .	do. .	140
12 inch paving tiles . . .	do. .	9
10 inch do.	do. .	13

TILING.

	Gauge.	Number required.
	inches.	
Pan tiles, per square . . .	12	150
Do. . do. . . .	11	164
Do. . do. . . .	10	180
A square of pan tiling requires one bundle of laths and $1\frac{1}{4}$ hundred of 6*d.* nails.		
Plain tiles, per square . . .	4	600
Do. . do. . . .	$3\frac{1}{2}$	700
Do. . do. . . .	3	800
Do. . do. . . .	laid flat	210
A square of plain tiling requires one bundle of laths and nails, one peck of tile pins, and three hods of mortar.		

CALCULATION OF LABOUR.

Digger.—The amount of digging which a man can perform in a day depends so much on the nature of the soil on which he has to operate, that it is almost impossible to fix a constant for this description of labour; the following data may, however, serve as a slight guide.

In loose ground a man will throw up about 10 cubic yards per day; but in hard or gravelly soils, where *hacking* is necessary, from three to five cubic yards, according to the hardness of the ground, will be a fair day's work.

Wheeling is estimated by the run of 20 yards. A gang of three men, two for filling and one for wheeling, will remove about 30 yards per day to this distance; and the labour of removing earth may be calculated according to distance, allowing three men to the first run, and an additional man for every 20 yards of distance.

The following table, although far from complete, contains constants for all the principal descriptions of bricklayers' work.

	Constant. To be multiplied by the rate of wages for a labourer per day.
Concrete. — Labour in mixing, wheeling, throwing in from a stage, and puddling, (where required to be done,) including erection of scaffolding, per yard cube .	.335

	Constant. To be multiplied by the rate of wages for a bricklayer and labourer per day.
Brickwork, per rod	4.941

	Constant. To be multiplied by the rate of wages for a bricklayer per day.
Extra labour to main facings . . .	.014

		Constant. To be multiplied by the rate of wages for a bricklayer and labourer per day.
Paving.		
Brick paving laid flat in sand .	per yard	.046
Do. laid on edge in sand . .	do. .	.075
Do. laid flat in mortar . .	do. .	.056
Do. laid on edge in mortar . .	do. .	.084
Paving-brick paving laid flat in sand	do. .	.046
Do. on edge in sand . . .	do. .	.106
Do. laid flat in mortar . .	do. .	.075
Do. on edge in mortar . .	do. .	.121
Clinker paving on edge in sand .	do. .	.132
10 or 12 inch tile paving . .	do. .	.010
Tiling.		
Pan tiling laid dry . .	per square	.422
Do. pointed outside . . .	do. .	.685
Do. pointed inside and outside .	do. .	.790
Plain tiling laid to a 4 inch gauge	do. .	.739
Do. . . to a $3\frac{1}{2}$ inch gauge	do. .	.764
Do. . . to a 3 inch gauge	do. .	.790

It would be impossible to give examples for every case that might occur, but the following will shew the method of valuing the principal descriptions of bricklayers' work.

Ex. 1.—To find the value of a cubic yard of concrete, made in the proportion of six parts of gravel to one of lime.

	£	s.	d.
1.1 yard of gravel, at per yard, prime cost			
Carriage of above to the works . .			
Three bushels of lime, at per bushel .			
—— per cent profit			
Labour on the above, found by multiplying the rate of wages per day for a labourer by the decimal .335			
Value per cubic yard . £			

Ex. 2.—To find the value of a rod of brickwork.

	£	s.	d.
4300 stocks, at per thousand . . .			
$1\frac{1}{2}$ yards of lime, at per yard . . .			
Three loads of sand, at per load . .			
—— per cent profit			
Scaffolding			
Labour per rod, found by multiplying the rate of wages per day for a bricklayer and labourer by the decimal 4.941			
Value per rod . . . £			

Ex. 3.—To find the value of a foot of malm facing.

	£	s.	d.
No. 7 best malms, (or seconds, as the case may be,) at —— each			
DD^{t}. the value of seven bricks, according to the quality with which the walls are built, the facing having been measured with the wall, —— at —— each			
Extra value of the malm bricks . . .			
Extra labour on the malm bricks, found by multiplying the rate of wages per day for a bricklayer by the decimal .014 . . .			
£			

Ex. 4.—To find the value of a yard of paving,—say with stock bricks laid flat in sand.

	£	s.	d.
36 stocks, at —— each			
Sand			
—— per cent. profit			
Labour, found by multiplying the rate of wages for a bricklayer and labourer by the decimal .046			
Per yard . . £			

Ex. 5.—To find the value of a square of plain tiling, laid to a four inch gauge.

	£	s.	d.
600 plain tiles, at per thousand . .			
One bundle of laths and nails . . .			
One peck of tile pins			
Three hods of mortar			
—— per cent. profit			
Labour, found by multiplying the rate of wages for a bricklayer and labourer per day by the decimal .739			
Per square . . £			

SLATER.

Slating is measured superficial, and charged per square of 100 feet.

In measuring, allow for the eaves whatever the bottom course measures, and for the hips and valleys measure their length by 12 inches, viz., six inches on each side; also the length of all irregular angles, as chimneys, dormers, &c., by six inches wide, as a fair allowance for cutting and waste.

For circular slating allow one-third extra.

VALUATION OF SLATERS' WORK.—TABLE OF MATERIALS AND LABOUR.

Average sizes of Slates.	Average gauge when laid.	1200 will cover squares.	Weight per thousand of 1200 in tons.	Number required to cover one square.	Nails required to a square.		Constant.
					Iron, cast or wrought, at per hundred.	Copper, at per lb.	To be multiplied by the rate of wages for a slater per diem.
	inches.					lbs.	
Doubles . . . 1 ft. 1 in. by 0 ft. 6 in.	$5\frac{1}{2}$	$2\frac{1}{2}$	$\frac{3}{4}$	480	480	5	.173
Ladies . . . . 1 ft. 3 in. „ 0 ft. 8 in.	7	$4\frac{1}{2}$	$1\frac{1}{4}$	280	280	3	.155
Countesses . . 1 ft. 8 in. „ 0 ft. 10 in.	10	$7\frac{1}{2}$	2	160	320	$3\frac{3}{4}$	.137
Duchesses . . 2 ft. 0 in. „ 1 ft. 0 in.	11	10	3	127	254	$2\frac{3}{4}$	.119
Tavistock		$3\frac{1}{2}$					
		A ton will cover					
Imperials . . . 2 ft. 6 in. „ 2 ft. 0 in.	. .	$2\frac{1}{4}$ to $2\frac{1}{2}$					
Rags and Queens, 3 ft. 0 in. „ 2 ft. 0 in.							
Westmorelands, various . . .		$2\frac{1}{4}$					

Example.—To find the value of a square of duchess slating, copper nailed.

	£	s.	d.
No. 127. Duchesses, at per thousand .			
$2\frac{3}{4}$ lbs. of copper nails, at per lb. . .			
—— per cent profit			
Labour on above, at per day . . .			
Value per square . .	£		

CARPENTER AND JOINER.

TECHNICAL TERMS.

Floors. (Plate 2.)

Folding floors, (fig. 1,) are laid four boards together, which are shot as nearly as possible to fit a given space, and forced downward folding into their places.

Straight joint floors, (fig. 2.)—The boards are carefully laid the length of the room in regular straight joints, and their heading joints should be either splayed, (fig. 6,) ploughed and tongued, (fig. 7,) or executed as fig. 8, taking care to break them at proper distances. Sometimes the edges are also ploughed and tongued.

Dowelled floors, (fig. 3.)—Is when the boards are laid straight, joined with wood or iron dowels, or pegs let into the edges to confine them down, instead of nails from the face of floors, having them only on the edges of the boards.

Figs. 4 and 5, shew the methods of replacing a board in the middle or end of a dowelled floor, should one be damaged, without disturbing the dowels in the boards on either side.

Wainscot floors should have iron dowels, but deal floors may have dowels made of beech, as the dowel

should certainly be made of a material much stronger than the floor. If beech, they should be formed as at A and cut square; and being driven into round holes in the battens makes them draw.

In all framed work, as window-shutters, doors, partitions, &c., the grooves for panels should be one-third the thickness of the stiles and rails.

If framed square on both sides, or O G F, or O F, and square, the panels should be half the thickness of the stiles and rails.

If framed B B, B F, or with a raised panel and square back, the panels should be two-thirds the thickness of the stiles and rails.

In doors moulded on both sides, the grooves for panels must be ploughed deeper than the moulding, to prevent light shewing through the mitres should the deals shrink; but if framed with a square back there is no necessity for ploughing so deep *.

The joints of panels should be ploughed and tongued.

All tongues should be cut across the grain of the wood.

ABBREVIATIONS.

The same observations respecting abbreviations will hold good; but to a greater extent with the carpenter and joiner than any of the other trades; and even the most complicated, as sashes and frames, which may appear at first unintelligible, will very soon be read with as great facility and equal accuracy, with all their varieties, as could possibly be if written at full length: viz.

* This of course only applies where the mouldings are stuck on the solid, instead of being laid in, as is usual in most cases.

FOR TIMBER.

L N O	Labour and nails only.	Ro & L	Rough and Labour.
L^{r} to Q^{r} P^{ns}	Labour to Quarter Partitions.	W	Wrought.
		F	Framed.
Fir or Oak. { Ro	Cube Fir rough.	B	Beaded.
Bnd	Bond.		

EXAMPLE.

C Fir, W, F, R, & B . Cube Fir, wrought, framed, rebated, and beaded.

For DEALS, after describing their thickness.

Inch deal R	Inch deal rough.	D	Dovetailed.
E S	Edges shot.	F	Framed.
W 1 S	Wrought one side.	K	Keyed.
W 2 S	Wrought two sides.	M & C	Mitred and chamfered.
G	Grooved.	S	Sunk.
B	Beaded.	P	Plugged.
P T	Ploughed and tongued.	L	Ledged.

EXAMPLE.

Inch deal, W 2 S, F & B . . . Inch deal, wrought two sides, framed and beaded.

Whole deal, W 1 S, P T . . . Whole deal, wrought one side, ploughed and tongued.

1½ deal, W 2 S, M & C . . . . 1½ deal, wrought two sides, mitred and chamfered.

DOORS.

R, G & L	Rough, grooved and ledged.	O R P	Ovolo raised panel.
		Q O B	Quirk ovolo and bead.
W, L, R, B	Wrought, ledged, rebated, and beaded.	O G	Ogee.
		Q^{k} O G	Quirk ogee.
S	Square.	Q^{k} O G B	Quirk ogee and bead.
B, B & S	Bead, butt and square.	O G F	Ogee flat.
B F^{h}	Bead flush.	O G R P	Ogee raised panel.
B F^{t}	Bead flat.	D M	Double margin.
B S	Both sides.	B M	Broad margin.
O F^{t}	Ovolo flat.		

EXAMPLE.

1¼ D^{l}, W L, R & B door . . . . Whole deal, wrought ledged, rebated and beaded door.

1½ D^{l}, 4 P, Q O G & B, & B F^{h} door One and a half inch deal, four panel, quirk ogee and bead, and bead flush door.

FLOORS.

Inch W D Floor F	Inch white deal floor, laid folding.	Ro, E S	Rough, edges shot.
		W F	Wrought, laid folding.
		W S J	Wrought, straight joint.
1½ Y D, R F Floor	Inch and half yellow deal, rough folding floor.	D	Dowelled.

EXAMPLE.

1¼ inch Y deal, W S J floor, H J P T, E N — 1¼ inch yellow deal wrought straight joint floor, heading joints ploughed and tongued, edges nailed.

SASHES AND FRAMES.

D C frames, O D S sills, W P P, B & P S, 1½ W a & h Sashes D h, B P, P L & L weights — Deal cased frames, oak double sunk sills, wainscot pulley pieces, beads and parting slips, 1½ inch wainscot astragal and hollow sashes double hung, brass pulleys, patent lines, and lead weights.

Any variation from this description may be made with ease; viz. if

I B P	Iron box pulleys.	M P P, B & P S	Mahogany pulley pieces, beads and parting slips.
B A P	Brass axle pulleys.		
S H	Single hung.	D P P, B & P S	Deal pulley pieces, beads and parting slips.
C W L	Common white line.		
I P	Iron pulleys.		
I W	Iron weights.		

ON MEASURING CARPENTERS' WORK.

There are two methods of measuring carpenters' work; one by taking the superficial contents of roofs, floors, partitions, &c., at per square of 100 feet for the labour and nails, and then the cube contents of the timber without labour. The other method is, by measuring the cube contents of the timber as cube fir and labour, framed, &c., &c.

If the scantlings of the timber are small or light, it will pay the carpenter best to measure the roofs, floors, &c.,

as labour and nails, and the timber as no labour. But if the scantlings of the timber are large and heavy, then it will be more to his advantage to measure the work as timber, with the particular labour thereon, as follows:—

If the work is measured as timber and labour, the scantling of each piece is taken as cube fir or oak and labour, and entered accordingly, as

Cube fir, or oak, in ground joists, bonds, lintels, plates, &c., labour and nails included.
Do. framed in roofs, partitions, naked floors, &c., labour and nails included.
Do. . do. . . truss framed . do.
Do. wrought and framed . . . . . do.
Do. wrought, framed, and rebated . . . . do.
Do. wrought, framed, rebated, and beaded . . do.
Do. in door-cases.
Oak trusses put into girders, per foot run, stating their size, as 4 in. square, &c.

In measuring for labour and nails to roofs, naked framed floors, ceiling floors, quarter partitions, or any other rough framed work, the dimensions should be taken from the extreme ends of the timbers each way, to ascertain the superficial contents thereof, as labour and nails at per square of 100 superficial feet. The openings to chimneys, staircases, &c., are not to be deducted, as the trouble of framing the trimmers and the joists into those openings is fully equivalent to running the joists through them. The same rule must be observed in taking the labour and nails in quarter partitions, as doors, &c., which must be entered in the measuring book and valued according to the description of the work, as follows:—

For Roofs.

Labour and nails to common shed roofing.
Do. . do. with purlins.
Do. . do. with purlins and struts.
Do. . do. common span or valley with purlins and rafters.
Do. . do. . span with collars, dovetailed into sides of rafters notched to receive purlins, filled in with common rafters.
Do. . do. . framed with principals, king posts, two struts and purlins, filled in with common rafters.
Do. . do. . . do. with king and queen posts.
Do. . do. . common kerb roof.

For Floors.

Labour and nails to fir ground joists, bedded and not framed.
Do. . do. pinned down on plates and framed to chimneys.
Do. . do. single framed floors, trimmed to chimneys and stairs.
Do. . do. with girders and cased bays.
Do. . do. framed floors, with girders, binding, bridging, and ceiling joists.
Do. . do. to common framed ceiling floors, with binding and ceiling joists.

Quarter Partitions.

Labour and nails to common 4 in. quarter partitions.
Do. . do. . . 5 in. do.
Do. . do. . . 6 in. do.
Do. . do. truss framed with king posts.
Do. . do. . do. with king and queen posts.
If oak is used describe it.

Having taken the labour and nails, you must then proceed to take the timber therein, which must be entered as cube fir, or oak, without labour.

In roofs, it is customary to take the highest timbers first, as the ridge piece, hips, &c., next the rafters, and so proceed downwards to the ceiling floor.

In partitions, floors, &c., begin with the timbers of the largest scantlings. Wherever a tenon is made, the length must be taken from the ends of the tenon, and not from the shoulders. Likewise the length of joists, including the part in the wall.

In measuring king and queen posts, take the whole length by the scantling of the shoulders. The parallel pieces sawed out for the abutment of the principal rafters must be deducted, should they exceed two feet in length and 2½ inches in thickness; but taken five or six inches short of the length between the shoulders, as the saw cannot enter with much less waste. But if the pieces are less than 2½ inches thick no deduction must be made, they not being worth more than the labour of cutting them out.

ROOFS.

Hips and valley to be taken run, at per foot for cutting and waste.

All plates, lintels, discharging pieces, to be taken as bond timber.

Gutter plates, diagonal ties, dragging pieces or braces, struts, and tie-beams, as fir framed.

Deduct half the length of bond timbers running through openings.

Allow the length of dovetails or scarf in bond timber, but only taken as bond timber.

Fixing iron straps, screw bolts, hanging ditto, and all iron work, to be taken and allowed extra.

Rounded hip and ridge rolls, and furring to rafters, to be taken and allowed extra.

FLOORS.

Oak trusses, let into brestsummers, to be taken at per foot run.

Oak king or queen posts, let into brestsummers, each at ——.

Girders sawed down, reversed and bolted, per foot run extra.

Letting in screw bolts, plates, &c., each extra.

Common or herring-bone strutting between the joists, per foot run extra.

Furrings to ceilings, quarter partitions, battenings to walls, &c., are measured by the square, including labour and nails, and valued according to the thickness of the deals used, from $\frac{3}{4}$ to 3 inches thick. Describe the battening either as framed or nailed only, or if plugged, or if with horizontal backings.

All wall-hooks and holdfasts to be allowed extra.

Centering to groins, vaults, recesses, &c.—Take the depth by the circumference for the superficial dimensions, which is valued at per square for use and waste, materials and time. If taken in this way, the whole of the vaults or recesses must be taken, although the same centering might have been used. But where there are a number of vaults or recesses of the same size, the fairest way is to allow the whole of the materials and time, or, if any trifling alteration only is wanted, to allow the time expended in doing it.

If to small openings, as windows, recesses, doors, &c., they may be measured at per foot superficial, viz.—

ft.	in.	ft.	in.	
3	6			
0	4			Superf. of centering to apertures, as windows, &c. (Plate 3, fig. 1. A.)
12	10			
0	9			
16	10			Superf. of semicircular centering to revealed windows. (Plate 3, fig. 2. B.)
1	10			

ft.	in.
8	2
4	1
0	7
12	10
10	8
5	4
0	10
16	10

Bracketing to cornices, (Plate 3.)—To be measured at per foot superf., according to the girt, viz., 24½ inches by the length, as whole or 1½ inch deal, according to the thickness of deals used. Some allow the bracketing the same girt as the cornice.

inches.
6
1½
9
6½
1½
24½

Cradling for entablatures, measured and charged per foot superf., according to their thickness.

All circular bracketing, cradlings, &c., to be charged double those of straight work.

Ashlering at per foot superf., according to the thickness of the deals used.

ft.	in.	ft.	in.	
20	0			Supposed length } (See Plate 3, fig. C.)
2	0			Height . . }

Gutters and bearers, (Plate 3, fig. C.)—Measure the length, then the breadth of the bottom and half the eaves-board.

Gutters between the roofs having two eaves-boards,

one on each side, take for the width of gutter one of them. (Fig. D.)

ft.	in.	ft. in.		
20	0		Supposed length	Enter them as— Superf. of whole deal gutters and bearers.
1	$1\frac{1}{2}$		Width, (fig. C.)	
20	0		Do. (fig. D.) .	
1	6			

Arris or fillet gutters per foot superf.

Water trunks per foot run; describe size, and allow for laps and half the length of shoe.

Sound boarding.—Measure the dimensions between the joists at per foot superf.; observe if single or double fillets.

Chimney grounds, per foot superf. (Plate 3, fig. E.)

ft.	in.	ft. in.	
4	6		Enter them as $1\frac{1}{4}$ inch framed grounds, or the thickness, as the case may be.
4	0		
3	9		DD^{t}. opening.
3	3		

Or they may be taken as—

	ft.	in.	ft. in.	
2)	3	9		Framed grounds.
	0	$4\frac{1}{2}$		
	4	0		
	0	9		

If the side grounds are very narrow, framed only for small mouldings, take them by the foot run, and enter them as narrow framed grounds.

Hinges to be numbered and described.

Skirtings, either plain or raking, taken at per foot superf.

If raking, to be taken for the width as per sketch, (Plate 5, fig. B.)

If on narrow grounds, take them per foot run.

If plugged to the walls, allow extra for plugging.

Moulded plinths.—Measure the square part by the length and width, and enter it—Whole deal, wrought one side, rebated and backed plinth. Girt the moulding, and allow half an inch behind the plinth. (See Dado, Plate 3, fig. n.)

Pilasters.—Girt and enter them thus:

ft.	in.	ft.	in.	
7	6			1½ inch deal, glued and blocked pilasters, framed
2	0			Q^k O G, or ovolo and bead, as may be. (Plate 3, fig. 3.)
2	6			Moulded impost { 0 6 / 0 3 / 0 9 }
0	9			

The plinth may be measured in with the pilaster.

Flooring, (Plate 2.)—In measuring boarded flooring, the dimensions must be taken, allowing the thickness of the skirting, and valued at per square.

Enter them in your book according to their thickness, and if yellow or white deal, if common or second best or clean deal; if laid folding, straight joint or dowelled.

The slabs are not generally deducted if they have mitred borders; if they have not mitred borders, deduct the opening or slab from the flooring. If the deduction is made when there are borders, the borders must be taken at per foot run, which will amount to as much as the deduction made on the floor.

Mouldings, such as architraves, round doors, windows, &c., base, surbase, &c., &c., are to be measured round the mitres and girt with a fine tape, and entered as

moulded architrave, base, &c., as the case may be. But in the abstract they must be all classed under the same head, as mouldings.

Single mouldings, as Q^{k} O G and bead, or Q^{k} ovolo and bead, &c., may be taken at per foot run, but their girt must be described, as they will be valued accordingly.

Doorcases, linings, &c., &c., (Plate 4.)—Doors are measured and valued at per foot superficial, according to their description. Solid doorcases are taken at per foot cube.

Door linings, grounds, &c., at per foot superficial, as follows:—

Solid doorcases and doors.

ft.	in.	ft.	in.		ft.	in.	ft.	in.
19	2				6	8		
0	9				0	5		
0	5				0	2	7	3
							7	3
				C O W R & B^{d} Doorcase, (fig. 1.)	3	4		
					0	10		
					0	6	4	8
							19	2

If there is a sill, take it the same as the head, viz., by making an allowance for its passing under and beyond the jambs, as may be; and also allow the additional length of jambs for framing into ditto. If a stone sill, iron shoes should be secured to the bottom of jambs, which must be numbered.

ft.	in.	ft.	in.	
6	8½			W^{h} Deal, 2 S L, R & B^{d} Door, size including the rebates. (Fig. 1.)
3	5			
				Number the bolts, and enter the hinges per pair.

Doors with linings, (Plate 4.)

ft.	in.	ft.	in.		ft.	in.	
6	8			Whole deal 4 P, Q O G & b and B F doors, (fig. 2, and A fig. 3, 4, 5,) or as it may be. But the door must be taken first between and including the rebates.	6	8	
					6	8	
3	1				3	1	
					0	2	their thickness.
				2nd. The linings by calculation . . .	16	7	
16	7				0	9	Twice the width of grounds.
0	6½			W^h. deal, P F R & b^d. lining, (as B, fig. 3 and 4.)	17	4	
					0	8	One face of architrave for mitres.
17	4			3rd. The grounds, viz. — Inch deal framed grounds. (D, fig. 3, 4, 5.)	18	0	
0	4½						
18	0			4th. Architraves.—Sup^r. moulded architraves. (C, fig. 3, 4, 5.)			
0	9						
				If mitred and block plinths, number them, but observe to take the architraves short.			
				Number the locks, hinges, bolts, &c., describing them.			
				Fig. 3 and 4, the common methods for doors in partitions: No. 4 has the preference. Fig. 5, for doors Q O & b^d. b s in walls, consequently wide linings framed in panels to answer them.			

Dado (see Plate 3.)—Elevation and section, showing base and surbase-moulding, plinth, &c., and that the heading joints should be broken, as they are in a straight joint floor. By the narrow grounds K, tongues I, and keys G, the dado hangs unconfined, the joints being also secured by slips ploughed and glued into the back, as at H, and dovetailed pieces inserted at regular distances, as at M, the top and bottom of dado, not being confined, and the joints thus secured, there will be no danger of the joints opening, even should the deal shrink. The tongues, I, through the grounds, K, should be about three feet asunder, as also the keys, G; these must be about three inches wide at the bottom. The heading joints should be ploughed and tongued.

B, the common, though bad method of rebating the dado into the grounds.

E, fillet in floor to secure plinth.

F, the best method, by grooving the plinth into floor. The angles of all dados must be grooved.

Measure the height of dado within half an inch of the top of surbase, as it will do for dado and grounds; then take superf. of moulded base and surbase mouldings; girt the surbase from plastering to face of dado, and the base from dado to top of plain plinths; then add half an inch for rebate. Enter the dado according to its description, viz.—

As inch deal keyed dado.
Do. dovetailed at the back, with grooved rail, or as the ease may be.
Do. do. raking.
Do. do. circular on the plan, grooved and backed on the cylinder.
Do. do. wreathed. Number each external mitre.

Sashes and frames, shutters, and fitting up to windows, (see Plate 4.)—Take the dimensions from the beads of sashes on the inside, and allow seven inches additional height for head and sill, and eight inches in width for frames in common sashes; but nine inches for large sashes.

ft.	in.	ft.	in.		ft.	in.
9	1			(Fig. 7.) D C F, O S sills, W P P, B & P S .	8	6
4	10				0	7
					9	1
				2 in. W, A & h, S S L, B C P, P L, L W .	4	2
					0	8
					4	10

French sashes, hung on hinges, or sashes hung on centres in solid frames.—Take the sashes separate, and the frames as directed for doorcases. If Venetian frames describe them as such.

If mouldings up munten, take them per foot run.

If circular heads, take the sash by itself, and the frames as run of circular frames, as per description; viz., with beads, parting slips, &c., &c., as may be.

Window shutters are taken per foot superficial, allowing for the rebates.

Number the sash fastenings, locking bars, spring latches, hinges, &c., &c.

The framed grounds, rebated and beaded boxings, linings, moulded architraves, &c., are taken per foot superficial, similar to the doors, viz.—

ft.	in.	ft.	in.	(Fig. 8.)	ft.	in.	
2) 8	8						
0	11			1¼ Dl. 4 Pan¹. Q O b & b b shutters, E, hung in two heights.	8	6	top and bottom bds.
					0	2	
					8	8	
2) 8	8			Do. back flaps, F.			
0	9½						
2) 8	8			Inch deal, do. do. G.			
0	6½						
				N. 4 pair 2½ butts.			
				8 pair back flap hinges.			
				1 locking bar.			
				2 brass knob spring latches.			
				1 patent sash fastening.			
2) 8	10						
0	10½			1¼ deal, 4 panel, b b, back lining, H	8	8	
					0	2	
					8	10	
4	10						
0	11			1¼ deal, Q O & B soffit, (fig. 6, I.)	4	2	
					0	8	
					4	10	
6	2						
2	6			1¼ deal, 3 panel, Q O b backs and elbows, (fig. 6 and 7, K.)	4	4	
					0	11	
					0	11	
					6	2	

ft.	in.	ft.	in.	
4	4			Run of slit deal, beaded capping to back.
				No. 2. Caps and elbows.
2)11	2			1¼ deal splayed and framed boxings, (fig. 8, L.) — 8 8 / 2 6 / 11 2
0	5			
5	2			1¼ deal framed grounds, (fig. 6, N.) — 4 4 / 0 10 / 5 2
0	5			
				Moulded architrave, M. . . . — 11 2 / 0 6½ (width of architrave.)
27	5			1 pair of mitred and blocked plinths, 8½ in. high. — 11 8½ / 0 8½ (DDt. ht. of plinth.)
0	9			11 0 / 11 0 / 4 4 / 1 1 (width of architrave.) / 27 5
				If boxings are executed, as shewn at L, (fig. 10,) they must be taken as splayed, framed, rebated, and beaded boxings, per foot superf., and the mouldings forming the architrave at per foot run.

Staireases (Plate 5) are taken per foot superficial, by girting the riser and tread by the length of the step, allowing extra for the thickness of the skirting, which is entered in the measuring book according to their thickness and description, viz., inch deal common steps, risers, and carriage.

1¼ inch deal second best, steps, risers, and carriage, with moulded nosings, close or cut string; or,

1¼ inch deal second best, S R & C M nosings, mitred to receive brackets or string boards and return nosings, and dovetailed to receive balusters.

1¼ inch clean deal, do. do.

1¼ inch clean deal, S R & C, to geometrical stairs on a circular plan, the risers mitred to the string board.

Method of measuring Steps, Risers, and Carriage.

ft.	in.	ft.	in.		ft.	in.	
3	6			Length of tread.			
1	5			Sup^{r}. 1¼ deal, S R & C to fliers, (fig. B and C.)	0	10	
					0	7	
					1	5	
				If geometrical winders, (as plan A,) consequently wrought and blocked carriages, (as fig. F and G,) they must be taken thus, and described as such:—			
7	2			Winders with circular ends. (Enter description.)			
3	9						
27	10			Risers, the lengths collected	0	7	Project.
0	8				0	1	of nosing.
					0	8	
1	2			DD^{t}. opening.			
1	6						
9	6			Whole deal framed string.			
0	10¾						
4	4						
0	9						
				Whole deal apron, 2 sides, (fig. D.) Return			
				¾ do. ploughed in, (fig. E.) . . landing.			
4	4						
0	4½						
				N.B. All winders must be taken as before described.			
				Fig. F, shews a single wrought and blocked carriage for a geometrical winder; G, a set of do. as fixed; the dotted lines shew the fronts of steps.			
				If moulded return nosings, or brackets, either straight or circular, number them.			
				Iron balusters, do.			
				Block steps, do.			
				Veneered curtails, do. (Plan of do., fig. H, shewing the manner of veneering it; I, section of wedge.)			
				Turnings to newels, do.			
				Pendent drops, do.			
				Handrails, either straight, ramped, or wreathed, per foot run.			
				Planceers, Newels, bar balusters, &c., do.			

ROTATION.

In measuring the carpenters' work of a building, it is usual and customary to begin with taking the roof; then the plates, bond timbers, &c., next the quarter partitions, then the naked floors under ditto.

If it is determined to take the timber in the above without labour, then the labour and nails at per square must be measured as such before the cube timber is taken.

In measuring joiners' work, on entering each room, first take the boarded floors, then the dado or skirting, next the battening or bracketing if any, then the chimney grounds and chimney pieces, next the windows, as sashes and frames, linings, boxings, grounds, architraves, &c., and last the doors, linings, grounds, architraves to ditto, &c., &c.

ABSTRACTING.

In abstracting carpenters and joiners' work, the greatest possible care must be taken to prevent confusion, for when several thousand dimensions have to be entered under their respective heads, unless a regular rule be observed in drawing out the abstract, and placing every description of work in the situation usually allotted to it, much time would be consumed in referring to the different heads.

Proper attention to the form here given, for abstracting the quantities and bringing the different articles into bill according to their regular rotation, will prevent the student from experiencing this inconvenience.

The abstract for carpenters and joiners' work should be made on very large paper, and care taken to give sufficient

length in each column for all the dimensions that it may be requisite to enter in them. The deals, as shown in the lower range, should be put on the other side or on another sheet of paper, under their respective thicknesses. The partitions, backs and elbows, soffits, dados, columns, pilasters, stairs, strings, gutters and bearers, &c., &c., should be placed. It is also better, in abstracting the work of a large building, to keep the ironmongery on another paper, as every care should be taken to keep all the articles and entries separate and distinct.

Abstract of Carpenters and Joiners'

Abstracted with Mr. X. Y. Z., January 1st, 1843.

PER SQUARE.														
Labour and Nails.			Furrings and Battenings.			Boarding.		Flooring.			Oak.		
Qr. P.	Roofs	Floors	¾ in.	2 in.		Ro.	Weather	White Inch	Yellow Inch Ro.	Inch Wrot. Foldg.	Cube No labour	Plank 1 in.	2½ in.
			1 in.	2½ in.		W 1 S							
							Sound				Do. labour	1½ in.	3 in.
			1½ in.	3 in.		W 2 S							
								1¼ in.		1¼ in. Wrot. S J			
									1¼ in.		Wrot.	2 in.	4 in.
											Wrot. and framed		

Slit Deal.			¾ in. Deal.			Inch Deal.			1¼ in. Deal.			1½ in. Deal.		
Ro.	1 S	2 S	Ro.	1 S	2 S	Ro.	1 S	2 S	Ro.	1 S	2 S	Ro.	1 S	2 S

Work done for A. B. by C. D.

Fir.			Window Shutters.	Doors.	Sashes	Frames.	Sashes and Frames.	Mouldings.	Runs
Cube No labour	W & F				1½ in. D¹. ovolo	D C F O S sill W P P B & P S			
	W F R & B⁴.								
And labour					2 W ovolo				
Wro¹.			Wainscot.	Mahogany.					

2 in. Deal.			2½ in. Deal.			3 in. Deal.			Ironmongery.				
Ro.	1 S	2 S	Ro.	1 S	2 S	Ro.	1 S	2 S	Screws	Bolts	Hinges	Locks	Rings
													Sundries

ROTATION

To be attended to in bringing the quantities into Bill.

Carpenter and Joiner.

Sqres.	ft.	in.				
			Labour and nails to roofs, according to description .			
			Do. . do. to floors, naked framed do.			
			Do. . do. to quarter partitions			
			Inch deal furrings, according to description			
			Do. battenings . . . do.			
			Do. rough boarding . . do.			
			Do. wrought do. . . . do.			
			Do. weather do. . . . do.			
			Inch folding floors . . do.			
			And the other floors, beginning with the inferior and finishing with the best, and so on for any other articles valued at per square.			
			Then the cubes, as—			
			Cube oak, no labour . . .			
			Do. bond			
			Do. wrought, &c., &c. . .			
			Cube fir, no labour . . .			
			Do. bond			
			Do. wrought and framed, &c., &c.			

Ft.	in.			
		Cube fir, wrought, framed, and rebated		
		Do. proper doorcases, or any other, according to the work thereon		
		After the cubes, then the work valued at per foot superf., viz.—		
		Superf. of inch oak plank, then the other thickness of oak plank, with the labour, &c.		
		Superf. of ½ in. deal rough, labour and nails		
		Superf. of do. wrought one side		
		Superf. of ¾ in. deal, and proceed to the thicker deals, with their labour, as the case may be, commencing with the thinnest, and proceeding in regular succession, according to their thickness and the labour thereon.		
		Then the framed work, as—		
		Inch deal square framed partitions		
		Next the doors, as—		
		1¼ in. 4 panel bead flush and square doors		

Ft.	in.	
		Then the windows, viz.—
		Inch deal bead butt back linings, quirk ogee and bead backs, elbows, and soffits
		Shutters—
		Bead butt back flaps, quirk ogee and bead shutters, &c., &c. . . . .
		Sashes and frames—
		1½ in. deal ovolo sashes . .
		Deal cased frames and sashes, according to their descriptions . . . . .
		Then—
		Superf. of mouldings . .
		The work per foot run . .
		Do. numbered . . . . .

VALUATION OF CARPENTERS AND JOINERS' WORK.

MEMORANDA.

50 cubic feet of timber equal one load.

100 feet superficial equal one square.

120 deals are called one hundred.

A reduced deal is 1½ inch thick, 11 inches wide, and 12 feet long.

120 12 ft. 3 in. deals equal $5\frac{2}{5}$ loads of timber.

400 feet superficial of $1\frac{1}{2}$ inch plank or deals equal one load.

Planks are 11 inches wide; deals, 9 inches; and battens, 7 inches.

A square of flooring requires—

	Number of 12 ft. boards.
Laid rough	$12\frac{1}{4}$
Do. edges shot	$12\frac{1}{2}$
Wrought and laid folding	13
Do. . . straight joint	$13\frac{1}{2}$
Do. . . . do. and ploughed and tongued	14

	Number of 12 ft. battens.
One square of wrought folding floor requires .	17
Do. straight joint	18

WEIGHT OF TIMBER.

39	cubic feet of	oak .	equal .	1 ton.
65	,,	fir .	,, .	do.
66	,,	deals .	,, .	do.
60	,,	elm .	,, .	do.
51	,,	beech .	,, .	do.
45	,,	ash .	,, .	do.
34	,,	mahogany	,, .	do.

CALCULATION, shewing the method of ascertaining the VALUE of a CUBE FOOT of FIR or other Timber from the prime cost prices:—

	£	s.	d.
Fir timber, at per load, say . . .	5	0	0
Carriage (according to distance) . .	0	5	0
Sawing, on an average	0	10	0
	5	15	0
Waste in converting, $\frac{1}{10}$	0	11	6
	6	6	6
20 per cent. profit	1	5	$3\frac{1}{2}$
	7	11	$9\frac{1}{2}$

$\frac{£\ 7\ 11\ 9\frac{1}{2}}{50}$ or $3s.\ 0\frac{1}{4}d.$ per foot cube.

The constants in the following tables are to be multiplied by the rate of wages for a carpenter per day.

LABOUR AND NAILS TO ROOFS.

At per square of 100 superficial feet.

	Labour. Days.	Nails. s.	d.
To common shed roofs, one story high .	.650	2	0
Do. do. with purlins	.800	2	0
If two stories, add	.084		
If three do. add	.169		
Common span or valley, with purlins and rafters, two stories high . . .	1.000	2	0
If three stories, add	.084		
Framed roofs, with collars dovetailed into sides of rafters, notched to receive purlins, and filled in with common rafters .	1.906	3	6

	Labour. Days.	Nails. s.	d.
Roofs framed with principals, king posts, purlins, braces, and common rafters	2.940	4	0
Do. do. with king and queen posts	3.170	4	0
Common curb roofs on one side	1.125	2	0
If two sides, add	.084		
If three sides, add	.169		
If above two stories, add	.100		

LABOUR AND NAILS TO NAKED FLOORS.

At per square of 100 superficial feet.

Ceiling floors, joists only	.584	1	6
Do. framed with tie-beams	.834	1	9
Do. with binding and ceiling joists	1.000	1	11
Ground joists, bedded but not framed	.500	1	6
Do. pinned down on plates and framed to chimneys	.836	1	6
Single framed floors trimmed to chimneys and stairs	1.050	1	9
If above 9 in. deep, add	.169		
Framed with girders and eased bays	1.700	3	0
Framed with girders, binding, bridging, and ceiling joists	2.500	4	0

LABOUR AND NAILS TO QUARTER PARTITIONS.

At per square of 100 superficial feet.

Common 4 in. partitions	.900	1	3
Do. 5 in. do.	1.050	1	6
Do. 6 in. do.	1.100	1	6
Truss framed with king posts	1.736	1	6
Do. with king and queen posts	2.000		

If oak, extra one-third.

LABOUR ON FIR TIMBER.

At per foot cube.

	Days.
Cube fir bond	.063
Do. framed	.126
Do. truss framed	.168
Do. framed and chamfered	.168
Do. wrought and framed	.210
Do. do. and rebated	.252
Do. W, F, R, and beaded	.294
Do. W, F, R, and D beaded	.336
Do. proper doorcases	.378
Planing fir, per foot superf.	.014

Bond timbers, wall plates, wood bricks, pole and curb, &c., are all to be under the head of bond.

CALCULATION, shewing the method of finding the VALUE of DEALS or BATTENS from the prime cost prices.

	£	s.	d.
Prime cost per hundred of 12 ft. 3 in. deals, say	35	0	0
Carriage, according to distance	0	10	0
	35	10	0
20 per cent profit	7	2	0
	£ 42	12	0
£ s. d. 42 12 0 / 120 or 7s. 1d. to be allowed in day-bills for each 3 in. deal	0	7	1
In measured work, allow for waste $\frac{1}{10}$	0	0	$8\frac{1}{2}$
	0	7	$9\frac{1}{2}$

In calculating the value of deals in thicknesses, add the value of the sawing, according to the number of cuts.

Every rise and fall of £9 per hundred, will increase or diminish the price of deals as near as possible per foot superficial, 1*d*. per inch in thickness. This rule will be found sufficiently correct for practice where the quantities are not large; where they are, the exact calculation should be made.

LABOUR ON DEALS, AT PER FOOT SUPERFICIAL.

In order to facilitate the fixing of proper prices for the labour on deals, at per foot superficial, the different descriptions of work which have always been considered of equal value, are classed together, by which the system adopted for valuing the various sorts of labour on deals, will be rendered more simple and easy; over the column in which is inserted each kind of work of equal value, is placed the decimal which, multiplied by the rate per day allowed for a carpenter at the time and place where the work is performed, will shew the fair and equitable price to be allowed.

	No. 1.	No. 2.	No. 3.	No. 4.
For deals from ½ to 1½ in. thick	.009	.019	.027	.037
For deals from 2 to 3 in. thick	.013	.027	.037	.049
	Edges shot. Plugged. Jacked. Rounded.	Labour and nails. Planing on each side. Grooved. Rebated. Ploughed and tongued. Framed. Battened. Mitred. Scribed. Backed. Throated. Clamped. Beaded.	Cut circular.	Cut standards. Sunk shelves. Scolloped. Ledged. Dovetailed.

BATTENING, PER SQUARE.

	Labour. Days.	Nails. s.	d.
¾ in. to 1¼ in. 12 in. from centre to centre	.590	2	0
If plugged to walls, add . . .	.170	1	0
Extra for wall hooks.			

WEATHER BOARDING, PER SQUARE.

Rough	.420	2	6
Ditto splayed edges	.680	3	0
Wrought	1.000	3	3
Ditto and beaded	1.255	3	6

ROUGH BOARDING, PER SQUARE.

¾ in. deal, rough	.500	2	6
Do. . edges shot	.667	3	0
Do. . ploughed and tongued . .	.750	3	0
Inch deal, rough	.542	2	9
Do. . edges shot	.709	3	0
Do. . ploughed and tongued . .	.918	4	0
Whole deal, rough	.584	3	0
Do. . edges shot . . .	.750	3	6
Do. . ploughed and tongued .	1.042	4	0
1½ in. deal, rough	.667	3	0
Do. . edges shot . . .	.862	3	6
Do. . ploughed and tongued .	1.167	4	0

DEAL FLOORS, PER SQUARE.

Inch, rough edges shot	.765	2	6
Do. wrought folding	1.180	2	6
Do. do. straight joint . . .	1.500	3	6
Whole deal, rough edges shot . .	.840	3	0
Do. . wrought folding . .	1.255	4	0

	Labour. Days.	Nails. s.	d.
Whole deal, wrought straight joint, splayed headings	1.760	4	6
Do. do. dowelled	3.170	8	0
1½ in. deal, rough edges shot	.920	3	0
Do. wrought folding	1.340	4	0
Do. do straight joint, splayed heading	2.000	4	6
If ploughed and tongued headings, add	.295		
If ploughed and tongued edges, add	.510		
For tongues to edges of boards, add	.840		

BATTEN FLOORS, PER SQUARE.

Inch, wrought folding	1.500	4	6
Do. straight joint, splayed headings	1.792	4	9
1¼ in. wrought folding	1.667	6	0
Do. straight joint, splayed headings	2.167	6	3
Do. dowelled	4.167	10	0
If ploughed and tongued headings, add	.431		
If ploughed and tongued edges, add	.750		
For tongues to edges of boards, add	1.250		
If battens less than 5 in., add	.334		

FRAMED GROUNDS, PER FOOT SUPERFICIAL.

	Labour and Nails.
Common framed grounds	.063
1 in. do. ploughed for plastering	.070
1¼ in. do. do. do.	.076
1½ in. do. do. do.	.083

SKIRTINGS, PER FOOT SUPERFICIAL.

Plain skirting	.037
Do. raking cut to steps	.070

	Labour and Nails.
Torus skirting	.065
Do. raking cut to steps	.085

GUTTERS AND BEARERS, PER FOOT SUPERFICIAL.

Inch or whole deal	.076

DOOR LININGS, PER FOOT SUPERFICIAL.

Plain single rebated	.056
Do. and beaded	.063
Do. double rebated	.070
Do. do. and double beaded	.077
Square framed jambs, each in 2 panels and soffit in 1 panel	.105
If bead butt, or moulded, add	.013
Bead flush, or quirk moulded	.027
Raised panel and moulded	042
For every extra panel if square	.021
Do. flush or moulded	.027
If double rebated	.021
If double beaded	.013

LEDGED DOORS, PER FOOT SUPERFICIAL.

$1\frac{1}{4}$ in. rough edges shot	.065
Add,	
If ploughed and tongued	.013
If ploughed and beaded	.021
If wrought each side	.013
If braced	.027
If hung folding	.021
If $1\frac{1}{2}$ in. thick	.013

FRAMED PARTITIONS, PER FOOT SUPERFICIAL.

$1\frac{1}{2}$ in. square framed	.065
2 in. do.	.076

	Labour and Nails.
Add,	
If BB or moulded	.027
If BF or quirk moulded	.042

DEAL MOULDINGS, FIXED COMPLETE.

Common mouldings	.128
Add, if quirked	.028

The materials for mouldings in deal will be found as near as possible of the same value as the labour. Small mouldings may be measured at per foot run, and valued according to the girt and form.

DOORS HUNG COMPLETE, PER FOOT SUPERFICIAL.

Two panel square framed	.070
Add, for every additional two panels;	
If framed square,	
For 1½ in. deal	.019
2 in. do.	.021
2½ in. do.	.027
If Framed B B and square,	
For 1½ in. deal	.021
2 in. do.	.024
2½ in. do.	.027
If framed B F and square,	
For 1½ in. deal	.027
2 in. do.	.037
2½ in. do.	.042
If framed Qk. O G and Bd. and square, or Q Ov. and Bd. and square,	
For 1½ in. deals	.021
2 in. do.	.024
2½ in. do.	.027
If double margins 4½ in. wide	.021
Do. 5½ or 6 in. do.	.042
Hung folding	.013

WINDOW LININGS, PER FOOT SUPERFICIAL.

	Labour and Nails.
Inch deal two panel square framed back linings .	.101
If B B or moulded, add	.013
B F or quirk moulded, add	.021
For each panel above two, if square . . .	.021
Do. . do. if moulded . .	.027
If splayed	.007

WINDOW BACKS, ELBOWS, AND SOFFITS, PER FOOT SUPERFICIAL.

Inch deal, plain keyed or two panel square backs	.085
Do. two panel square backs, elbows and soffits .	.098
Add for each panel above three,	
If splayed	.010
If bead butt or moulded	013
B F or quirk moulded	.021

BOXINGS TO WINDOWS, PER FOOT SUPERFICIAL.

Framed, rebated and beaded boxings . . .	.101
Splayed F R and beaded boxings . . .	.120

INSIDE WINDOW SHUTTERS, PER FOOT SUPERFICIAL.

¾ in. deal clamped flaps in one height . .	.120
Inch do. two panel square in one height . .	.125
For every panel above two add,	
If framed square	.022
If B B or moulded	.022
B F or Q^{k}. moulded	.026
Q O G & b, or Q O & b & square . . .	.026
For every extra height add	.013

SASHES AND FRAMES HUNG COMPLETE, PER FOOT SUPERFICIAL.

	Labour and Nails.
Sashes—	
1½ in. deal ovolo sashes	.049
Do. wainscot or mahogany	.070
If 2 in. or 2½ in. sashes deal, add	.021
If do. wainscot or mahogany, add	.028
If astragal and hollow in deal, add	.013
If do. in wainscot or mahogany, add	.021
Frames—	
Deal cased frames O S sills, D P P B & P S, S hung	.070
If prepared for 2 or 2½ sashes, add	.013
If prepared with wainscot or mahogany P P B^{ds}. & P slips, add	.085
If for 2 or 2½ in. sashes, add	.019
If double hung, add	.013

To find the value of sashes and frames, add to the above for labour and nails only, the amount of materials expended.

STAIRCASES, PER FOOT SUPERFICIAL.

Common steps and risers and two fir carriages	.070
Do. moulded nosings and close strings	.098
Do. do. mitred to cut string-boards and dovetailed to balusters	.127
Add,	
If winders circular one end	.042
Do. circular two ends	.085
Do. geometrical with wrought and blocked carriages	.056
Riser tongued to step bottom edge	.021
Do. do. both edges	.042

	Labour and Nails.
Feather tongued joints	.021
Add for each—	
Quarter curtail glued upright	.667
Do. blocked and veneered	1.167
Proper curtail step and riser	3.334
Returned moulded nosing	.250
Do. circular	.417
Plain cut bracket	.250
Do. circular	.417
Housing to step and riser	.098
Do. to winders	.125
Do. to moulded nosings	.167
Do. to do. circular ends	.459

OUTSIDE STRINGS TO STAIRS, PER FOOT SUPERFICIAL.

Whole deal, plain	.084
Do. sunk	.098
Do. sunk and moulded	.112
Do. do. cut	.127
Do. do. mitred to risers	.140

If wreathed,—four times the above.
If ramped,—once and a half do.

WALL STRINGS, PER FOOT SUPERFICIAL.

Plain and plugging	.080
If moulded, add	.021
If rebated for plastering, add	.028

DADOS, PER FOOT SUPERFICIAL.

Proper dado, with dovetailed keys, joints secured with slips, and dovetails hung to grounds by keys grooved into do. and dado	.070

	Labour and Nails.
Add,	
If raking scribed to steps	.019
Do. to moulded nosings	.021
If base grooved into floor	.009
For each external mitre beyond two in the room	.228
If circular on the plan,—double the above.	
If wreathed do,—treble do.	

COLUMNS AND PILASTERS, PER FOOT SUPERFICIAL.

1¼ in. deal plain pilasters, properly glued and blocked	.112
Do. do. diminished	.153
1¼ in. deal diminished columns, properly glued and blocked, under 14 inches diameter	.420
Do. do. above do.	.350
Add for	
Arris, or deep fluting to pilasters, one inch wide	.021
Do. two inches wide	.028
Do. three inches wide	.042
Arris or deep fluting to columns, one inch wide	.027
Do. two inches wide	.042
Do. three inches wide	.056
Straight grooves to columns	.021
Headings to flutes to do.	.070
Straight grooves to pilasters	.013
Headings to flutes to do.	.042

SAWYER.

The charges for sawyers' work are often very inconsistent, and differ widely in various parts of the country.

The proper mode of valuing the labour on sawing fir or any other kind of timber is by the square of 100 superficial feet, the price depending on the usual rate of wages and the hardness of the timber.

Sawing to old timber is usually charged double on account of the extra labour occasioned by nails, &c.

Small scantlings may be charged by the foot run.

Planks, deals, battens, and flat cuts, according to their length, at per dozen cuts.

And all other descriptions of sawyers' work may be valued in a similar manner, according to the circumstances of the case.

MASON.

ON MEASURING STONE-MASONS' WORK.

There is a variety of opinions respecting the manner of measuring stonemasons' work, both in taking the dimensions for the stone, and also for the labour. It certainly requires more practical knowledge of the operative or working part of the business, than any other trade, to determine correctly between these conflicting opinions. The following rules may be considered sufficiently explanatory of the principle on which the practice is governed or founded.

In measuring cube Portland or other stone; all stones that are worked square should be taken accurately as they come from the saw to the banker, of course including the parts laid on or pinned into the walls. But as bevelled or irregularly formed stones cannot be converted without more waste than square ones, the dimensions should be taken so as to make a fair allowance for such additional waste, particularly as the solid contents of all the different descriptions of Portland stone, whatever shape the stones may be worked to, are abstracted under the same head, (viz. Cube Portland,) and therefore should be of the same value; but which cannot be the case, unless the extra

waste in the bevelled stone, &c., is allowed for in taking the dimensions. When this is done, it is only requisite, in estimating the prime cost, to calculate for the waste as if all the stones in the building were cut and worked square. If this method were not adopted, it would be requisite, in ascertaining its real value, to make so many different heads in the abstract for cube Portland, as there are different shaped or bevelled stones, accurately describing each; when the calculations for waste, and of course the price, must vary according to each particular form, the trouble of which would be endless and without any advantage; indeed, it would come to the same thing, viz. making the necessary allowances for waste, according to the form of the stone. Bevelled or arch stones should be taken about one-sixth above the mean dimension, to allow for waste.

In measuring the cubic contents of spandril steps, some difference of opinion exists as to the best method of taking the requisite dimensions. The following three methods are in common use: viz.—

1st. Take the length of the step by its extreme width and by the whole height of the riser measured from tread to tread.

2nd. Take the length of the step by the extreme width from the nosing of the tread to the acute angle, and by half the height of the riser taken from the top of the tread to the acute angle downwards.

3rd. Take the length of the step by its extreme width, and by three-fifths of the depth of the riser taken from the top of the tread to the acute angle downward.

To illustrate these different methods, a diagram is given, Plate 6, fig. 3, showing the method of sawing two spandril steps out of the same block, by which it will be

seen that, allowing half an inch only in each step for waste in sawing and taking them out of winding, the original block must not be less than twelve inches deep; and supposing the extreme length of the step, including the part pinned into the wall, to be five feet, the size of the block will be

5 0
1 3
1 0
—— 6 3;

and each step will therefore contain

5 0
1 3
0 6
—— 3 1 6

By method 1st, we have

5	0		length of step.
1	3		extreme width.
0	6		whole height of riser.
——	3	1	6 which is correct.

It should, however, be observed, that if the steps, instead of having moulded nosings were worked plain, the block would only require to be eleven inches deep, as shewn by the dotted lines, or one-twelfth less than for moulded steps, whilst the rule gives the same content as before, and consequently it should only be applied for the latter description of step.

By method 2nd, we have

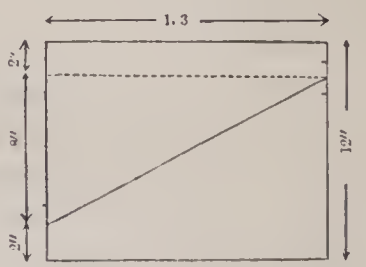
5	0	0	length of step.
1	6	0	extreme width of do. to acute angle.
	4	3	half height of riser from top of tread to acute angle downwards.
———	2	7	10 which is about one-twelfth less than the real content.

By method 3rd, we have

5	0	0	length of step.
1	3	0	extreme width of do.
	5	8	three-fifths of height of riser from top of tread to acute angle downward.
———	2	11	5 which is nearly correct.

A better way than either of the above methods is to take the length of the step by a dimension found as follows, allowing half an inch on each step for waste.

1	3	width of step.
	6	2 base of rectangle.
——		4 half do. of triangle.
		6



This gives

	5	0
	1	3
		6
——	3	1 6 as before.

In measuring winders the content may be found in the same way, taking the extreme length of the step by the mean sectional area, making due allowance for waste.

The labour on the under side to be taken as circular sunk work.

All stone exceeding three inches thick should be taken as cube measure, with the labour, &c. on do.

All stones three inches thick, and under, should be taken as slab, at per foot superficial.

The usual custom has been to measure in such edges as are worked, and show fair. Objections have been made to this practice, and with some degree of justice; but it will make very little difference, if the edges of thin slabs are measured separate, and a fair price allowed for the labour; and for cutting into narrow pieces for mantles, jambs, &c., it would be nearly equal to the value of the stone, but in thick slabs the same argument will not hold good; and, therefore, as the object in measuring work should be to ascertain its real value, and allow only a fair remunerating price, it appears more correct to measure the labour on the edges at per foot run, offering a fair price, according to their thickness, instead of entering it as stone. An extra price should be allowed for very large scantlings, also for hoisting stones on exceedingly high buildings, according to circumstances.

LABOUR ON PORTLAND OR OTHER STONE.

In measuring the labour of working Portland stone, the principal difference of opinion arises in determining what faces or beds should be taken as plain work. Examples are given showing the methods of taking the labour on different kinds of common work; but in the measurement of superior work, a plain face must be taken previous to measuring the sunk, moulded, or other work, when the mould could not be applied without first making that plain face. There cannot be much difference of opinion in taking the other labour, such as sunk work, moulded work, circular-sunk or circular-moulded work, &c., which

must be girt as it appears when the work is finished, but which is not always the case with the plain work; and therefore it is requisite to know the manner in which the work is executed, to form an accurate conclusion, and to do justice to the workman in its measurement.

ABBREVIATIONS RECOMMENDED.

In measuring stonemasons' work the same rules must be observed in entering the dimensions in the book as directed for the other trades; and the following abbreviations are recommended, for the reason stated under that head:—

C P	Cube Portland.	C W	Circular work.
P W Sup^{r}	Plain work.	C C W	Circular circular work.
S W	Sunk work.	M W	Moulded work.
C S W	Circular sunk work.	C M W	Circular moulded work.

MEASUREMENT.

Staircases. (Fig. 3, Plate 6.)

ft.	in.	ft.	in.	
5	0			Cube Portland steps, the 5 ft. including that part of the step
1	3	3	1½	that is pinned into the wall, and also the projection of
0	6			nosing.
5	0			P W top { 1 1 tread. / 0 1¼ under the next riser. / 1 2¼
1	2¼			
4	6			M W front. Girt of moulding, nosing and riser.
0	7			
1	3			M W end Taken or girt at the average width.
0	6			

ft.	in.	ft.	in.	
0	6			P W to front the part pinned into tho wall.
0	6			
5	0			P W to soffit.
1	1			
				[Or the whole flight may be taken in one dimension.]
5	0			S W rebate . . . . { 0 1¼ } rebate to front of step. { 0 1¾ } { 0 1¾ } do. to back of step.
0	4¾			No. of steps pinned into wall. { 0 4¾ }
				No. of holes cut for balusters.
5	0			
1	3	6	3	{ Block of stone required to cut two steps out of.
1	0			

Landings. (Plate 6, fig. 1.)

				C P Landing . . . { 12 0 } { 0 6 } { 0 6 } in wall. { 0 1½ } { 0 1½ } Joggles. { 13 3 }
13	3			
4	6			
0	6			
2)13	3			P W top and bottom. Here is more plain work than appears, but the plain faces must be made before the joggles are worked.
4	6			
12	0			M W front.
0	7			
2) 0	6			P W to front of landing in the walls.
0	6			
				S W joggles . . . . { 0 9 girt of the joggle. { 0 4½ do. of the groove for do. { 1 1½ (Fig. 2)
2) 4	6			
1	1½			
				Run of cutting . . . { 13 3 } { 4 6 } { 4 6 } { 22 3 } Cut for and pinning landing into wall, which is allowed to be taken through the doorway, &c., for the extra trouble of pinning up the quoins, &c.
22	3			

Square Steps to Entrance Doors, etc. (Plate 6, fig. 4.)

ft.	in.	ft.	in.	
2) 6	9			C P supposing two steps.
1	1			
0	7			
6	9			P W to bottom step.
1	8			
6	9			P W to top step.
1	7½			
6	9			S W rebate for landing.
0	2½			
6	9			2 in. Portland landing . Portland steps worked to an exact length, and fitted between spandrils, allow one end as plain work.
4	1			No. plugs.

Coping. (Plate 7, fig. 1.)

		ft.	in.	
3	6			
1	9			
0	2¼			C P feather edged coping
		0	3	Nothing extra is allowed for being cut or worked bevel on the face, as it may be done without extra waste.
		0	1½	
		0	4½	
		1	9	top.
		0	3	edges.
		0	1½	
3	6			P W . . . . .
2	4½	0	1½	projection over wall.
		0	1½	
		2	4½	
1	9			P W to Jts. Allow P W to one joint of each stone, which should average 3 feet in length.
0	2½			
		0	3	P W to return of angles where they occur. edge.
1	9	0	1½	projection.
0	4½	0	4½	
3	6			Run of throat, or may be taken at . . . .
		3	6	
		0	1	M W throat.

Angle quoins may be No. extra for each at or measure the coping through both ways as common coping, which gives an extra length the width of the coping for the extra thickness, and the trouble of sunk work on the top. Or they may be measured thus:—

ft.	in.	ft.	in.	
1	11			C P quoin, fig. 2 . . . . . { No. of cramps.
1	11			{ Pairs of plugs.
0	3			{ Lead for running ditto.
1	11			S W top.
1	11			
*1	11			P W joint.
0	3			
*3	10			P W outside edge and projection. { ft. 0 in. 3; 0 1½; 0 4½
0	4½			
0	4			S W inside angle notched . { 0 1½ inside edge; 0 1½ projection; 0 1 throat; 0 4
0	4			

String Courses. (Plate 7, fig. 6.)

3	6			C P string course.
1	0			
0	8			
3	6			S W top.
0	2			
3	6			P W . . . . . { 0 7½; 0 2 projection; 0 9½
0	9½			
3	6			Throat S W, or run of throat.
0	1			
1	0			P W to one joint of each stone
0	8			average 3 ft. in length.

Square Plinths worked all round. (Plate 7, fig. 9.)

2	0			C P plinth.
0	11			
0	6			{ 0 11; 0 6
2	0			P W sides. . . . . { 2)1 5
2	10			{ 2 10

* In taking the angle quoins of coping some will allow the plain top to be taken first, but this is incorrect, as there is no occasion to make it previous to sinking the top, being only necessary to bring the stone to its thickness and out of winding as if for plain work.

ft.	in.	ft.	in.	
0	11			P W top.
0	6			
1	2			S W rebate.
0	4			No. of mortice holes.

Window Sills. (Plate 7, fig. 4.)

4	2	C P window sill.
0	8	
0	6	
4	2	P W top, front and projection . (0 2 + 0 6 + 0 2 = 0 10)
0	10	
0	8	P W to one end.*
0	6	
4	2	S W top and throat . . . . . (0 6 top. + 0 1 throat. = 0 7)
0	7	

Curbs. (Plate 7, fig. 5.)

6	0	C P curbs.
0	7	
0	6	
6	0	P W including projection . . . (0 6 + 0 7 + 0 6 + 0 1 = 1 8)
1	8	
0	7	P W to one end of each stone, which
0	6	should not be less on an average than 3 ft. in length. Take the quoin ends that shew fair as P W.
2	11	C P circular curb. (Plate 7, fig. 7.)
0	9	
0	6	
2	11	P W.
0	9	
2) 2	11	C P W.
	0 6	
2) 0	6	S W to arch joints.
	0 6	Plugs per pair, with lead ; or allow the lead per lb.
		Holes, each

* This is what is usually allowed. Some claim both ends, others measure them thus :—

2) 0	6	P W to projection of ends.
0	2	

Columns. (Plate 7, fig. 8.)

ft.	in.	ft.	in.	
5	5			C P)
1	5			
1	5			} shaft.
5	3			C P)
1	3			
1	3			
1	11			C P base.
1	11			
0	8			
1	11			C P cap.
1	11			
0	8			
2)5	5			P W)
1	5			} shaft taken two sides.
2)5	3			P W)
1	3			
5	5			Circular work)
4	$6\frac{1}{2}$			} shaft.
5	3			Circular work)
3	11			
1	$7\frac{1}{2}$			S W to bed for joggle in lower stone.
1	$7\frac{1}{2}$			
1	5			P W top bed of upper stone in shaft.
1	5			
1	11			P W top)
1	11			
2)1	11			P W rims } base.
0	8			
6	0			Circular M work)
0	$10\frac{1}{2}$			

ft.	in.	ft.	in.	
1	11			P W top
1	11			
2) 1	11			P W sides
0	8			
6	0			Circular M work
0	8½			

cap.

In measuring the circular M work to cap, it should be taken at the average between the angle of abacus and the front.

If the neck moulding is worked in the shaft, the same dimensions may be taken for C P and labour as the bottom stone of the shaft.

Architraves over Columns. (Plate 7, fig. 10.)

3	0	C P
1	7	
1	7	
3	0	P W bottom bed.
1	7	
2) 3	0	M W to fronts.
2	0	
1	7	P W to end.
1	7	
1	4	S W to the joggle.
1	0	
1	7	S W to end, including the joggle
1	11	

ft.	in.
1	7
0	2
0	2
1	11

Blockings and Cornices. (Plate 7, fig. 3.)

3	6	
1	6	
0	6½	C P blocking . . . . .

	0	6
	0	4
½)	1	0
	0	6 ½ for bevel.

ft.	in.	ft.	in.		ft.	in.
					1	6
					1	7¾
3	6			P W	0	4
3	5¾					
					3	5¾
1	6			P W joint, average size.		
0	6					
0	9			Run of groove for plugs.		
				No. pairs of plugs, and running with lead, per pair.		
				If the plain work to bed of cornice, on which the blocking stands, is not taken, it would be allowed to take the bottom bed, which would make it 4 ft. 1¾ in. for the P W.	3	5¾
					0	8
					4	1¾
3	6			C P top bed of cornice.		
2	4					
0	8					
3	0			C P bottom bed of cornice.		
1	3					
0	5					
					1	3
3	6			P W beds	1	3
2	6				2	6
3	0			P W under blocking.		
0	9					
					1	1
					0	10
					0	6
3	6			Sunk and moulded work	0	7
3	0				3	0
1	2			Groove to run joints with lead.		

Niches. (Plate 7, fig. 11.)

6)	1	0 high	C P
	1	3	
	0	9	Stones in body.
12)	2	6	C P
	1	0	
	0	9	

ft.	in.	ft.	in.	
0	9			C P head centre stone.
0	9			
0	4			
3) 2	9			C P arch-stones taken the whole width, on account of trouble in getting them out.
1	6			
1	3			
3) 2	9			P W face of do.
1	6			
6) 2	9			S W to arch joints of do.
1	3			
	1.6			Circular-circular work to spherical head.
3	0			
12) 2	6			P W to bed of stones in body.
0	9			
6) 1	3			Ditto.
0	9			
2)13) 1	0			S W to arch joints.
1	0			
5	0			Circular work to body . . . .
4	$8\frac{1}{2}$			
14	$8\frac{1}{2}$			S W to front A . . . . .
0	$7\frac{1}{2}$			
10	0			Run of bead and double quirk.
4	$8\frac{1}{2}$			Circular do.
				No. of cramps.
				No. of plugs.

ft.	in.	ft.	in.
3)3	0	9	0
	$\frac{1}{7}$	0	5
		$\frac{1}{2}$)9	5
		4	$8\frac{1}{2}$

5	0	
5	0	
4	$8\frac{1}{2}$	
14	$8\frac{1}{2}$	

Stone facings to fronts of houses, if more than three inches thick, should be taken as cube stone, and the face, and one bed and joint taken as P W. Bond stones taken one face bed and joint. If not more than three inches take them as slab, and one bed and joint as P W. If to circular-headed windows, take the arch joints as sunk work and the soffits as circular plain work, and the straight reveals as P W. If rusties, take them as S W. If stone facings are taken to a parallel thickness, as for old brick fronts, they may be taken as slab even to 4 in. thick, but the P W to beds and joints must not then be taken.

In abstracting masons' work, the paper must be ruled in columns as before described, observing to place the C P in the first column, and leaving sufficient space in the following columns for the different sorts of labour on do., as P W, S W, M W, &c.; the next columns for Portland slabs, keeping each thickness in a separate column; the next columns for vein, statuary and other marble; the next for Yorkshire and Purbeck pavings and other articles of different descriptions; the following columns for articles taken as running measure, and the last columns for those numbered.

WEIGHT OF STONE.

Purbeck stone .	14 cubic feet	weigh	one	ton.
Portland . .	16 „	„		do.
Bath . .	17 „	„		do.
Yorkshire . .	15 „	„		do.
Granite . .	13½ „	„		do.
Marble . .	13 „	„		do.
Purbeck paving .	50 feet superf.	„		do.
Do. step 13 by 6½	25 feet run	„		do.

VALUATION OF LABOUR.

TABLE OF CONSTANTS FOR THE DIFFERENT DESCRIPTIONS OF MASONS' WORK.

N.B. The factor to be applied is the rate of wages for a mason per day.

		Days.
Labour, squaring and laying new York or Purbeck paving	per foot superficial	.021
If in courses, add		.010
Labour on Portland or similar stone per foot superficial. N.B. Sawing to be taken as half plain work.		
Plain work to bond stones	per foot superf.	.140
Do. to beds and joints	do.	.181
Do. rubbed face	do.	.209
Do. do. circular	do.	.291
Sunk work rubbed	do.	.250
Do. do. circular	do.	.313
Moulded work rubbed	do.	.292
Do. do. circular	do.	.417
Circular work to shafts of columns having the neck moulding or part of the base worked in the same stone	do.	.334
Circular circular or spherical work to domes or balls	do.	.500
If rubbed, add extra	do.	.049
Taking up, squaring and relaying old paving	do.	.042
Add if in courses	do.	.015

LABOUR ON STATUARY OR VEIN MARBLE, INCLUDING SAWING, WORKING, AND POLISHING.

Plain work	per foot superf.	.875
Circular work	do.	1.250

		Days.
Sunk work	per foot superf. .	1.667
Moulded work	do. . .	2.334
Circular sunk work . . .	do. . .	2.334
Circular moulded work . .	do. . .	3.000

ON OLD WORK.

Old vein marble chimney reset	per foot superf.	.125
Do. do. squared and reset . . .	do.	.167
Do. do. sanded, grounded, and squared .	do.	.209
Do. do. and reset	do.	.250
Do. do. cleaned and reset . . .	do.	.250
Do. do. sanded, polished, and reset .	do.	.375
Do. do. sawed, sanded, polished, squared, and reset	do.	.626

In the west of England, and all the counties in which stone is abundant, it is usual and customary to build with the rough stone of the country, and the practice generally is to measure the walls by the perch of 18 superficial feet, supposing them 24 inches thick, to which thickness all the walls, whether more or less, are reduced by multiplying the superficial contents by the thickness in inches and dividing them by 24—or they may be reduced to the cube perch of 36 feet: but some regulate the prices per perch according to the thickness of the walls.

In measuring the work some contend to girt the quoins and all projections, as they say to pay them for the extra trouble in working and setting the stones, but this should not be allowed except for labour only, and even then it is much fairer to measure the quantity of walling as it is, and make a proper allowance for the extra labour, either in quoins, chimney breasts, flues, reveals, &c.

ROTATION

To be attended to in bringing the quantities into Bill.

MASON.

Perch.	ft.	in.	
			Rough stone walling foundations in random courses, well bonded and flushed with mortar, and grouted with hot lime and sand every two courses . . . .
			Do. do. above foundations, levelled every two feet or height of two quoins, well bonded and flushed with mortar every course. .
			Superficial of extra labour to external quoins . .
			Do. do. to internal quoins, &c.
			Cube Portland, or any other stone valued per foot cube.
			Superficial of plain work. .
			Do. of sunk work, or such other labour, as the case may be . . . . .
			Superficial of $1\frac{1}{4}$ Portland slab.
			Do. 2 do. . . . .
			Do. $2\frac{1}{2}$ do. . . . .
			Do. of 1 in. vein marble slab in chimneys, &c. . .
			Do. of 1 in. statuary marble slabs, in do., &c. . .
			Do. of Purbeck paving .
			Do. of Yorkshire paving, &c.; then the runs, as run of Purbeck steps, &c.; then the Nos. as No. of holes cut, &c. .

PLASTERER.

TECHNICAL TERMS.

Pricking up or Rendering is the first coat of coarse stuff, as lime and hair laid on the walls. If intended to be floated it is crossed, as a key for the next course or coat; if it is only intended for setting or two coat work, then it is not crossed, as it is not necessary, and would show through the thin coat of lime and hair.

Render set is two-coat work on walls; viz. one coat of rough plastering performed with lime and hair, and one coat of fine stuff, which is called setting; this is performed by laying on a very thin coat of fine mortar, denominated finishing stuff, which must be well trowelled to prevent its cracking.

Floated render set is three-coat work: one coat of rough plastering crossed, another coat laid on ditto, and floated with a long rule to make it perfectly straight on the face, and one coat of fine stuff or setting on ditto, as R. S.

Lath and plaster is lathing on quarter partitions, &c., and one coat of plastering only laid on the laths, as pricking up or rendering is on the walls.

Lath and plaster set is two coats on the lathing, as render set is on the walls.

Floated lath and plaster set is three-coat work on the laths, as floated render set is on the walls.

Trowelled stucco. This work either on walls or partitions is performed as before described for setting; then a thin coat of stucco, which is prepared with a large portion of sand, and laid on similar to the fine coat called setting, but worked with water, and trowelled till it is perfectly hard and solid.

All rooms that have cornices must either be floated or have a screed formed all round them, to obtain a straight face for running the cornice by.

Rough cast is pricked up and floated as if to be set or stuccoed, and then the rough cast, (which is composed of half lime and half small stones,) thrown with force into ditto, and consequently appears rough on the face when finished.

Depeter is pricked up and floated in a similar manner, and small stones forced on dry from a board, by which the face of wall is finished rough, and the same colour as the stones used.

Depretor is plastering done to represent tooled stone.

Pugging to floors is pricking up between the joists of floors either on laths or boards, to prevent the sound escaping from one room to another; this should be performed with coarse stuff and chopped hay if on boards, but if on laths with lime, sand and hair, and not less than $1\frac{1}{2}$ in. thick in either case.

Ornaments are said to be worked by hand when they are so designed that they cannot be cast, which renders the work very expensive, as every part must be performed in the plaster as if modelled in clay.

ABREVIATIONS.

R R	Rough render.	R C B	Rough cast on brick.
R S	Render set.	R C L	Rough cast on lath.
F R S	Floated render set.	If any of these are whitened, add W	
L O	Lath only.		
L P	Lath and plaster.	W N W	White to new work.
L P S	Lath and plaster set.	W S W	Wash stop and white.
F L P S	Floated lath and plaster set.	L W 1^{ce}	Lime white once done.
S B	Stucco on brick.	L W 2^{ce}	Lime white twice done.
S L	Stucco on lath.	C C	Common colouring.

ROTATION.

In measuring plasterers' work, first take the ceiling; second the sides; third the cornices and enrichments.

MEASURING. (Plate 8.)

Plasterers' work is taken superficially, and valued by the square yard of 9 feet.

If cornices are round the room, take the ceiling only to half the projection of the cornice, or one projection in and one out; or measure the ceilings clear of the cornices, and take the whole of their projection as lathing and pricking up.

If the cornices are bracketed, as fig. 1, measure the ceilings clear of the cornice.

The sides of the room should be taken from the ground through the bottom bed or half the height of the cornice.

If on brick, or bracketed, as fig. 1, take them only to the bottom of cornice.

In taking the length of cornices, measure the size of the room, taking one projection in and one out, and girt them from the mould or from the ceiling to the wall line.

Number all the angles in the room above four, as extra.

In taking cornices where there are coves, take the coves as superf. of cove to cornices, and allow 1 inch extra on the girt of the cornice for the return of the mould on the cove.

All enrichments to be taken separately.

Friezes, under the cornice, must be taken as superf. of plain floated frieze. A floated ground must be taken under all enriched friezes.

If cornices are run to old ceilings, a screed must be allowed.

Enriched friezes, ceilings, or soffits must be measured first as plain work, and then the enrichments taken separately at per foot run, and a price fixed according to their description and value.

All circular mouldings and enrichments to be taken one face in and one out, fig. 3.

To explain the foregoing rules, see section of a cove cornice, &c. &c., fig. 2.

Take first the ceiling through the reeds.

Second, length of cove above the cornice by 2 ft.

Third, length of moulded cornice by 1 ft. 2 in., being 1 in. extra for top on cove.

Fourth, do. of plain floated frieze by 6 in.

Fifth, do. of moulded architrave by 8 in.

Sixth, do. of moulded reeds by 9 in.

Reveals to windows taken at per foot run, price according to width.

ABSTRACT

YARDS.												COLOURING.			SUPERF. FEET.			FEET RUN.	
RR	RS	FRS	LO	LP	LPS	FLPS	FSB	FSL	WSW	WNW	LW	Common.	Lemon.	Green.	Plain Frieze.	Plain Cornice.	Stucco groins.	Quirks.	B & D Quirk.
												Grey.	Blue.	Red.				Circ. do.	Circ. do
																		Numbers.	

As some of these articles will not be whitened, as for papering, &c., place them all in the Abstract as not whitened, and the whitening in a separate head, as—White to new work.

H

ROTATION

To be attended to in bringing the quantities into Bill.

Plasterer.

Yds.	ft.	in.	
			Rough render . . . . .
			Render set . . . . .
			Floated render set . . .
			Lath and plaster, one coat .
			Lath and plaster set . .
			Floated lath and plaster set
			Stucco on brick . . . .
			Stucco on lath . . . .
			Pugging . . . . .
			White new work . . .
			Wash, stop, and white . .
			Lime white . . . . .
			Colouring, as the case may be . . . . .
			Superf. of plain cornice, &c. &c. . . . .
			Then the
			Run of cornices, girt, &c. .
			,, reveals . . . .
			,, beads, &c. . . .
			,, Nos. of mitres, &c.

VALUATION OF PLASTERERS' WORK.

Calculation of Materials.

1 hundred of lime = 25 striked bushels (old measure).

	Materials.	Labour.
100 yards of render set require	$1\frac{1}{2}$ hd. of lime. 1 double load of sand. 4 bushels of hair.	Plasterer, labourer & boy, 3 days each.

	Materials.	Labour.
130 yards of lath, plaster, and set require	1 load of laths. 10,000 nails. $2\frac{1}{2}$ hd. of lime. $1\frac{1}{2}$ dble. lds. of sand. 7 bushels of hair.	Plasterer, labourer and boy, six days each.

Lathing.

1 bundle of laths and 384 nails will cover 5 yards.

Render only.

$187\frac{1}{2}$ yards require . .	$1\frac{1}{2}$ hd. of lime. 2 double loads of sand. 5 bushels of hair.

Floating requires more labour, but not more than half the quantity of stuff as rendering.

Setting only.

375 yards require . .	$1\frac{1}{2}$ hd. of lime. 5 bushels of hair.

20 per cent. is always allowed on the prime cost of the materials.

CALCULATION OF LABOUR.

The decimal is to be multiplied by the rate of wages for plasterer, labourer, and boy, per day.

	Days.
Rough render	.019
Floating do.	.021
Setting	.016
Lathing	.019
If circular work, add on the lathing and also on each coat of plastering	.008
If to groins, add as above	.010

SMITH AND IRONMONGER.

SMITH.

Cast iron in girders, story-posts, columns, &c., is charged by the ton or the cwt.

Moulds are generally charged extra, if out of the common run.

Articles in common demand, as cast-iron water-pipes, gutters, &c., are sold by the yard, according to diameter.

Cast iron in railings, gratings, casements, brackets, &c., is charged by the pound, according to the nature of the work.

Wrought iron in chimney-bars, railings, handrails, shoes to piles, &c., is charged by the pound.

IRONMONGERY.

Nails are sold by weight, and charged by the hundred. Screws at per dozen. Iron bolts and screws at so much each. Brass flush bolts at per inch. Pulleys each, according to diameter. Hinges and screws at per pair. Locks at per piece.

Twenty per cent. profit is allowed on the prime cost of all ironmongery.

PLUMBER, PAINTER, GLAZIER,

AND

PAPER-HANGER.

PLUMBER.

Plumbers' work is valued according to the price of lead, at per cwt., to which must be added the labour; for which, however, we have not sufficient date on which to base a set of constants for this description of work. Lead-headed nails, wall-hooks, and holdfasts are charged per piece; clout nails, by the hundred.

Joints are charged separately.

Water pipes, funnel pipes, and socket pipes are charged at per foot, according to diameter.

Washers and plugs, air-traps, brass grates, spindle valves, bosses, ball and other cocks, at so much each.

Common lift, hydraulic or force pumps, at so much each, according to diameter.

Water-closets, at so much each, according to the description of apparatus.

PAINTER.

ABBREVIATIONS.

1 O 2 O 3 O 4 O 5 O 6 O	Number of times in oil common colour.
F	Flatted, as 3 O F three times in oil and flatted.
D W	Dead white.
F G	French grey, or the particular colour may be written.
C C F	Clear colour and finish.
G W	Grained wainscot.
G M	Grained mahogany.

ROTATION.

In measuring painters' work, first take the windows; second, the skirting, dado, or wainscotting; third, the chimney pieces, if painted; and last, the doors.

MEASURING.

In measuring painters' work, all work not cut in on both edges, must be taken including edges and projections, at per yard square of 9 feet.

Work cut in on both edges, as skirtings, cornices, shelves, &c., are measured at per foot run.

Ornamental work first taken as common, and then superf. of labour to ornaments at per foot superf. or run.

Sash frames, window lights, casements, bars, dormers, frontispieces, chimney pieces, &c., numbered and valued at each. Sash squares at per dozen.

Iron or wood railings, balusters to stairs, &c., are measured on both sides as solid work, to allow for the extra trouble of painting round the bars, rails, &c., at per yard.

If ornamented, add extra one face in the width of such ornamental parts.

If ornamented turned balusters, also add one extra face as far as the turned work goes.

Handrails, &c., grained mahogany, first measure them in with the balusters and then per foot run for graining.

Soffits to windows per foot run.

Letters or figures numbered and valued at per inch in height.

Windows and doors are measured thus:—(see Plate 8.)

Windows (fig. 4.)

ft.	in.	ft.	in.	
11	0			Window front.
5	5			
7	10			Shutters: 7 6 × 0 4 edges. = 7 10
6	0			4 6 × 1 6 boxings and edges. = 6 0
20	3			Linings: 7 6 / 7 6 / 0 9 / 4 6 — sured to the floor thus: = 20 3
1	2			If the backs are cut away the linings must be measured to the floor thus: 10 6 linings; 10 6 linings; 4 6 soffit; 0 9 elbows. viz. ft. 26 3, 1 2
22	6			Beads varnished, supposing them to be mahogany or wainscot sashes and beads: 7 6, 3 9, 11 3, 11 3 = 22 6
				12 squares varnished.
				1 locking bar.
				Some only allow the shutters to be taken thus: . . . 1 6 boxings. 0 6 edges. = 2 0; 3 9 shutters. = 5 9 instead of 6 feet.
				The outside of window would be taken as . . . . . N 1 frames. 1 dozen of squares. 1 sill, if the stone sill is painted.

Doors (fig. 5.)

2)	7	0		Door fronts for both sides . 4 0 / 0 4 projection of architraves. = 4 4
	4	4		
16	0			Linings: 6 6 / 6 6 / 3 0 = 16 0
0	8			0 6 / 0 2 edges of door and rebates. = 0 8

ABSTRACT.

Once in Oil.				Twice in Oil.				Three Times in Oil.				Four Times in Oil.				Five Times in Oil.			
Com.		Runs.	Nos.	Com.		Runs.	Nos.	Com.		Runs.	Nos.	Com.		Runs.	Nos.	Com.		Runs.	Nos.
And Flat.				And Flat.				And Flat.				And Flat.				And Flat.			

By this method every description of work stands in rotation in the Abstract as it should be drawn into Bill, and will likewise be found with much more facility on the Abstract.

ROTATION

To be attended to in bringing the quantities into Bill.

Painter.

Yds.	ft.	in	
			Once in oil . . . . .
			Run of Skirting, &c. . .
			No. sashes. Doz. squares
			Twice in oil . . . . .
			Runs . . . . .
			Numbers . . . . .
			Three times in oil . . .
			Runs . . . . .
			Numbers . . . . .
			Three times in oil and flat dead white . . . .
			Runs . . . . .
			Numbers . . . . .
			If carved work, or any other per foot superf. it must be put under the yards of painting so many times done.
			Likewise party or other coloured work must be placed under the head of work according to the number of coats.

VALUATION OF PAINTERS' WORK.

Calculation of Materials.

45 yards of work, 1st coat, including knotting, stopping, and every preparation requisite for the second coat will require.	5 lbs. of white lead. 5 lbs. of putty, litharge, &c. 1 quart of oil.
Second and following coats	5 lbs. of white lead. 1 quart of oil.

20 per cent. profit is always allowed on the prime cost of the materials.

CALCULATION OF LABOUR.

The decimal to be multiplied by the rate of wages for a painter per day :—

First coat, including stopping, &c. .	.027
Second and following coats . .	.019

The above data will suffice for the valuation of common work, for which alone it is possible to lay down any rules, as the value of decorative work, as graining, imitations, &c., depends upon the ability of the artist, and the manner in which the work is executed.

GLAZIERS' WORK.

In measuring glaziers' work the dimensions must be taken between the rebates, and all irregular panes the extreme size each way.

The price per foot must be calculated from the prime cost per crate, allowing for carriage and 20 per cent. profit. The larger the panes are the more difficulty, risk, and waste ; consequently the price should increase in the following proportions :—

			ft.	in.	ft.	in.	
Panes whose superficial contents are		under	.	.	2	0	at per foot.
Do.	do.	do.	from 2	0	to 2	6	add 2*d.*
Do.	do.	do.	do. 2	6	to 3	0	add 4*d.*
Do.	do.	do.	do. 3	0	to 3	6	add 6*d.*

Above the squares whose contents are under 2 feet.

A CRATE OF CROWN GLASS

Contains 12 tables of the best, at per crate
„ 15 „ seconds „
„ 18 „ thirds „
„ 18 „ fourths „

Each table is from 4 ft. to 4 ft. 6 in. diameter: some tables may be cut to within 2 in. of the centre, others not nearer than 4 inches.

	ft.	in.
Supposing a crate to be 4 ft. 6 in. diameter, and that it may be cut to 2 in. from the centre, the quantity of glass that may be cut from it, including the triangular pieces, will be . .	14	2
If only 4 ft. diameter, and cannot be cut nearer than 4 in. of the centre	10	10
	25	0
And deducting the triangular pieces, which are of very little value	2	6
We have as the available contents of the two tables	22	6
The average contents per table . . .	11	3

Taking the sizes of squares that will cut to the most advantage; but as squares of all sizes must be cut from the tables as they are wanted, the average produce per table is not more than 10 ft. superficial.

Labour and putty per foot may be found by multiplying the rate of wages for a glazier per day by the decimal .110.

Example.—To find the value per foot of glazing, with best Newcastle crown glass, or any other kind of glass:—

	£	s.	d.	
Prime cost of crate (12 tables) .	0	0	0	
Carriage, &c.	0	0	0	
	0	0	0	
20 per cent. profit . . .	0	0	0	
Divide by No. of feet the crate will produce, for best glass . 120)	0	0	0	
	0	0	0	per foot.
Labour and putty . . .	0	0	0	
Total per foot	£0	0	0	

PAPER-HANGER.

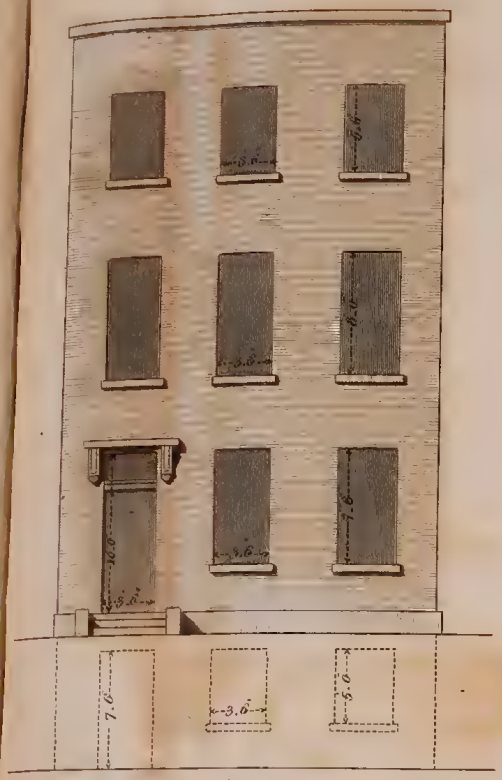
A piece of paper is 12 yards long, and, when hung, 20 inches wide. Twelve yards running measure is equal to $6\frac{3}{4}$ square yards, or 60 feet superficial; therefore divide the superficial feet by 5, which will give the number of yards, and these divided by 12 will give the number of pieces of paper; the price as per agreement, to which price must be added—

For pumicing and preparing the walls, at per piece
For lining paper, and hanging do. do.
For hanging the paper . . . do.
Borders . . . . . per doz. yds. run.
Hanging do. . . . . do.

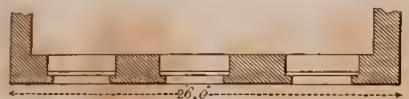
If there be any odd yards they are charged as one piece.

THE END.

G. Woodfall and Son, Printers, Angel Court, Skinner Street, London.



A



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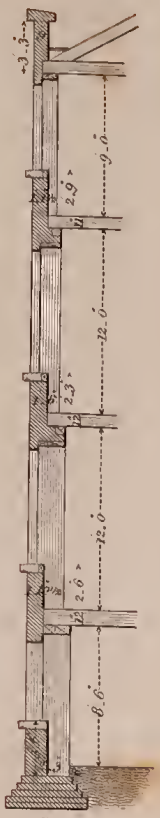
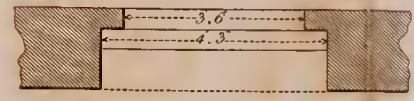


C

D



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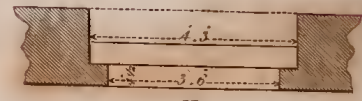
G



H

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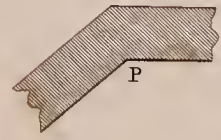

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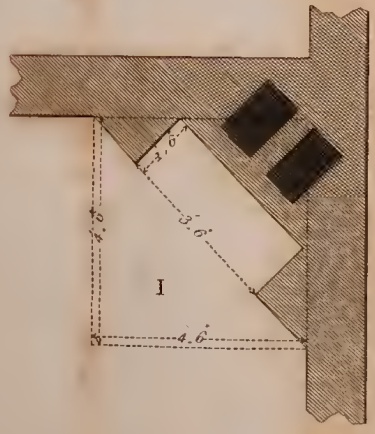

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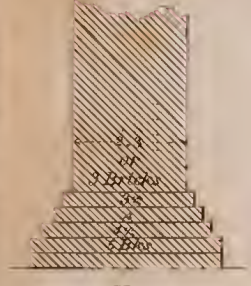

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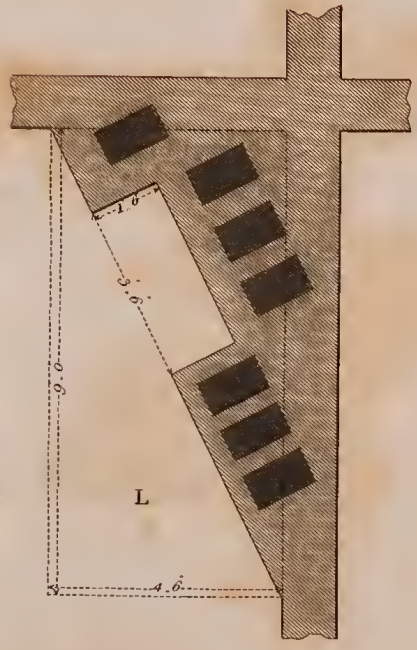
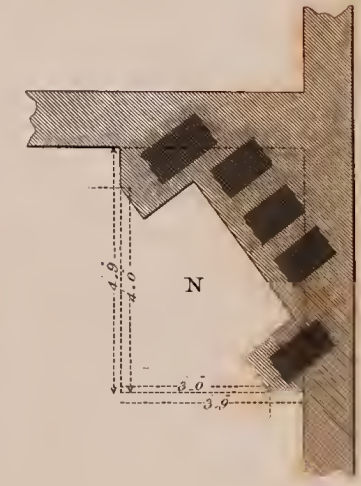


L

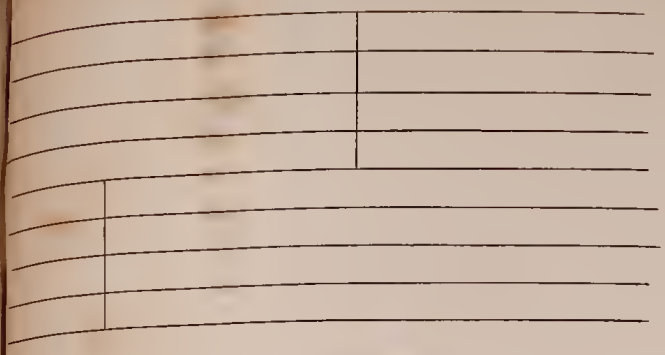
M



N

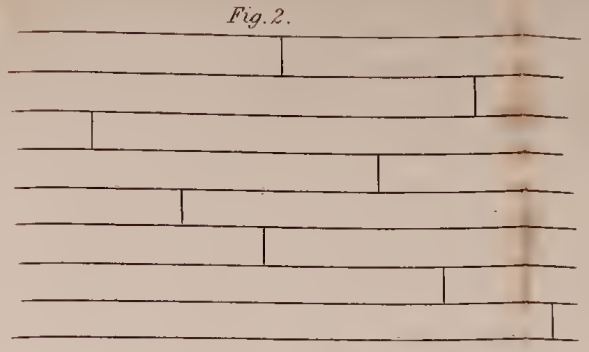
Methods of Laying Floors.

Fig. 1.



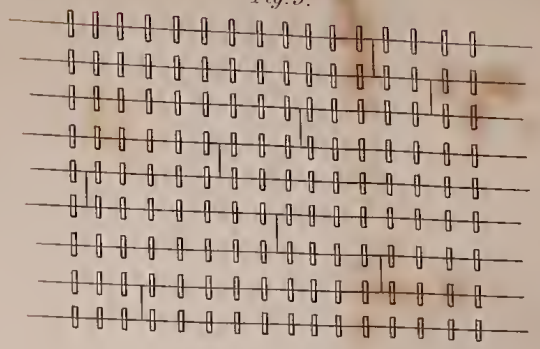
Folding

Fig. 2.



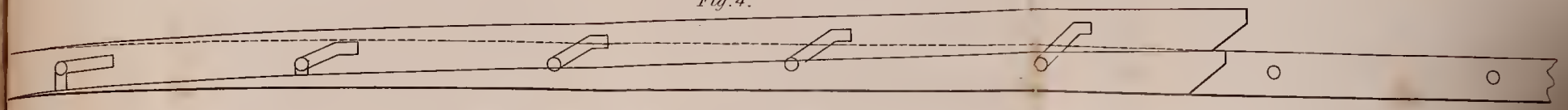
Straight Joint

Fig. 3.



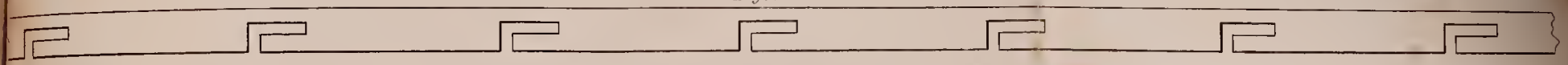
Dowelled

Fig. 4.

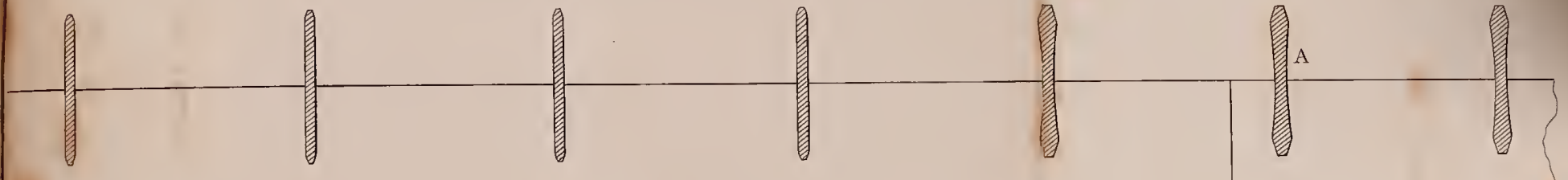


Section, shewing Method of replacing a board in the middle of a Dowelled Floor without disturbing the Dowels.

Fig. 5.



Method of replacing a board at the end of a Dowelled Floor.



Board in a Dowelled Floor. 3 I.ns to a foot.

Fig. 3.

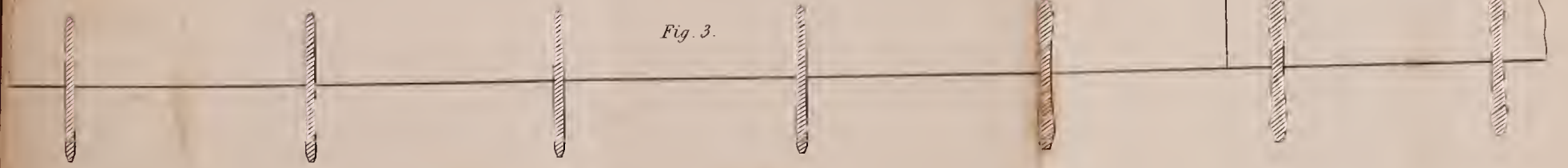
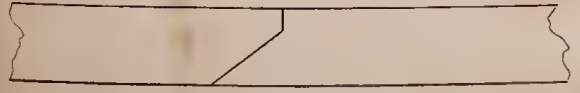


Fig. 6.



Splayed heading

Fig. 8.

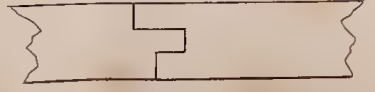
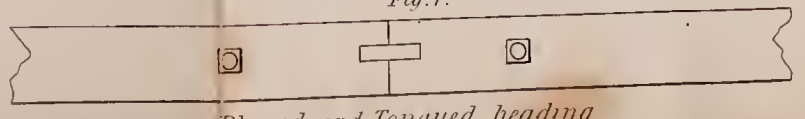


Fig. 7.



Plowed and Tongued heading

John Weale, Architectural Library, 59, High Holborn. 1843

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Centering

Fig. 1.

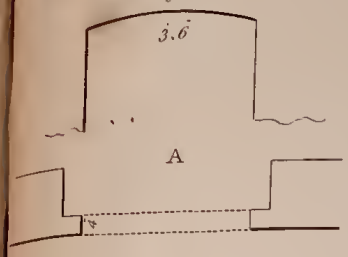
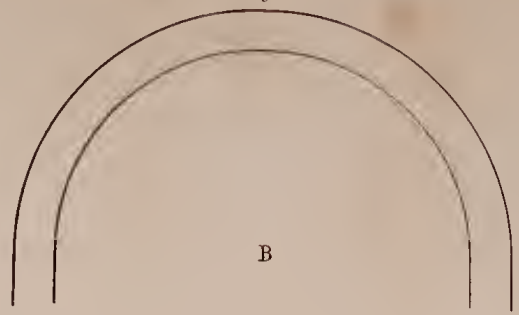
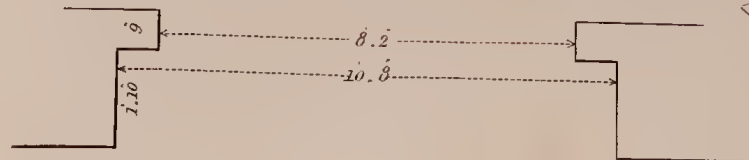
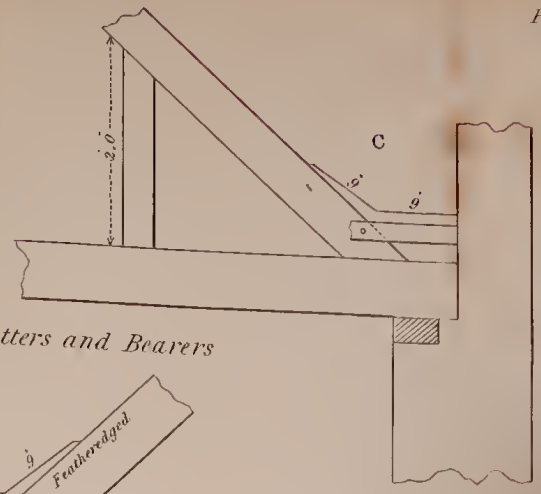


Fig. 2.





Bracketing



Gutters and Bearers

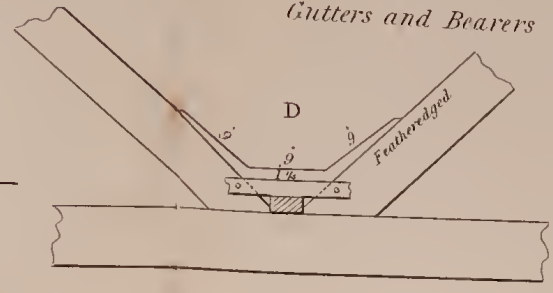
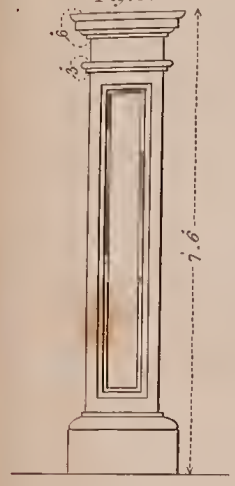
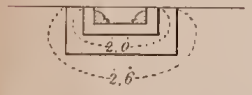


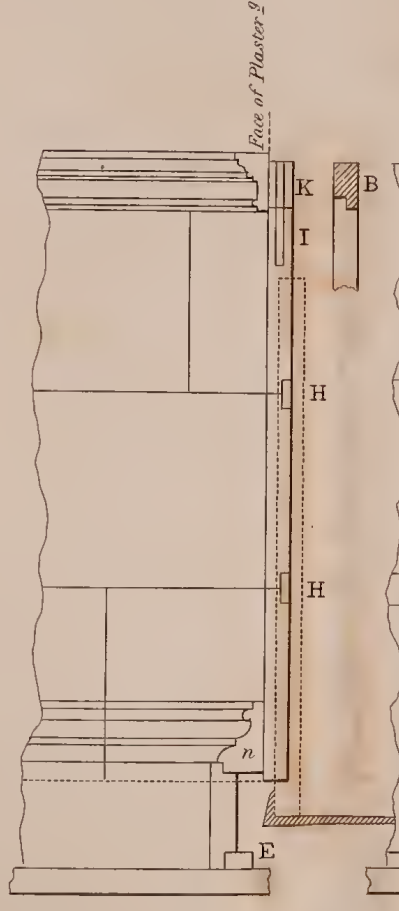
Fig. 3.

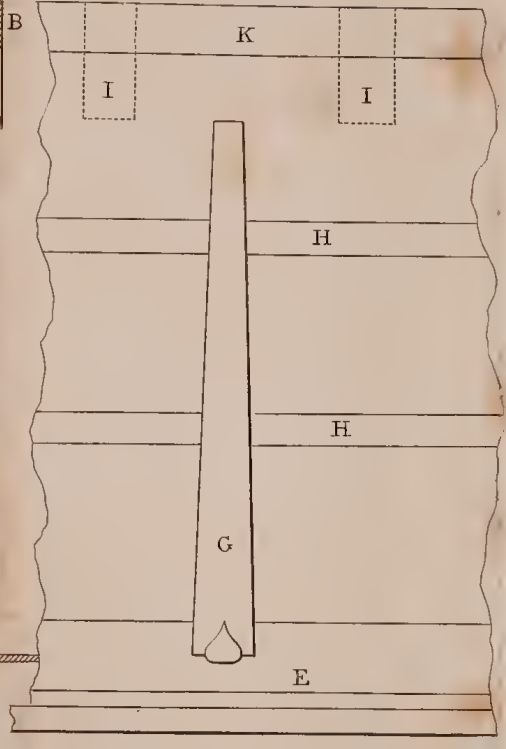


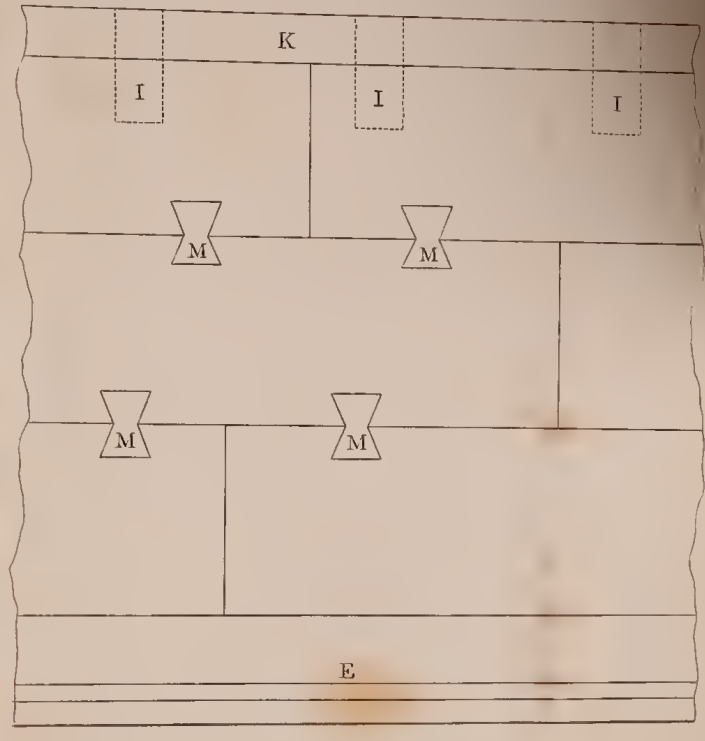
Pilaster

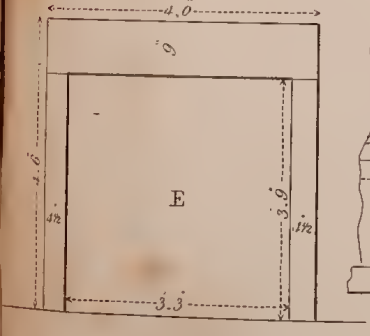


DADOS

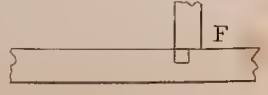


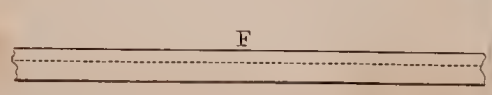






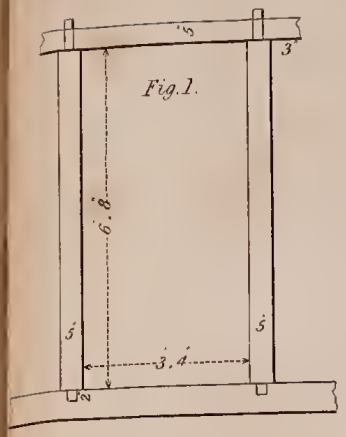
Chimney Grounds

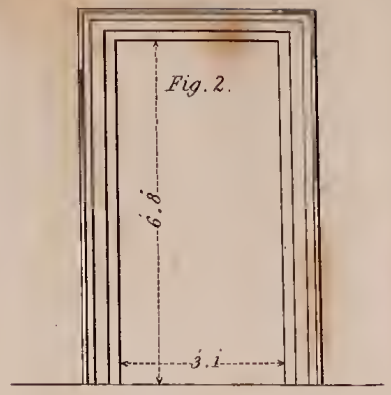


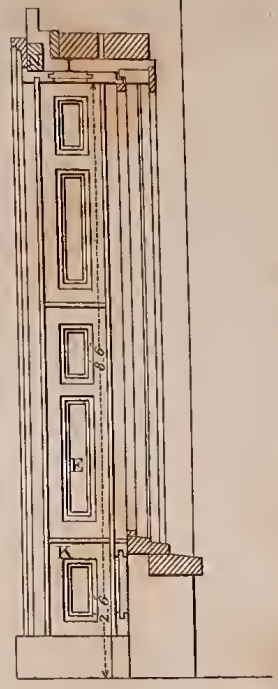


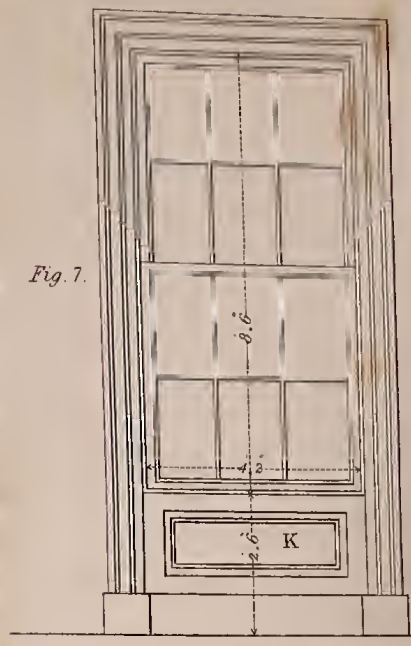
Doors, Cases, Linings &c.

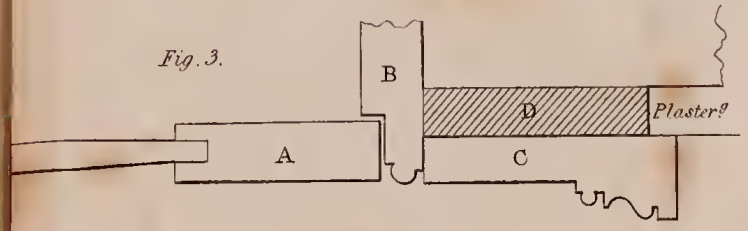
Sashes and Frames, Shutters &c.

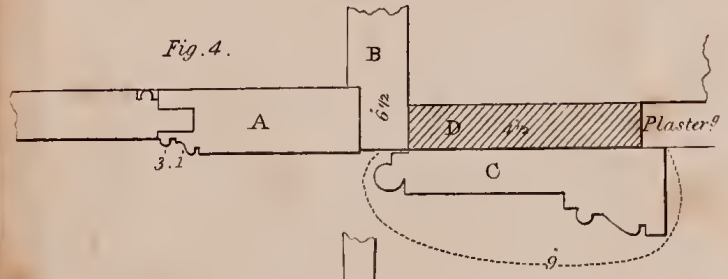












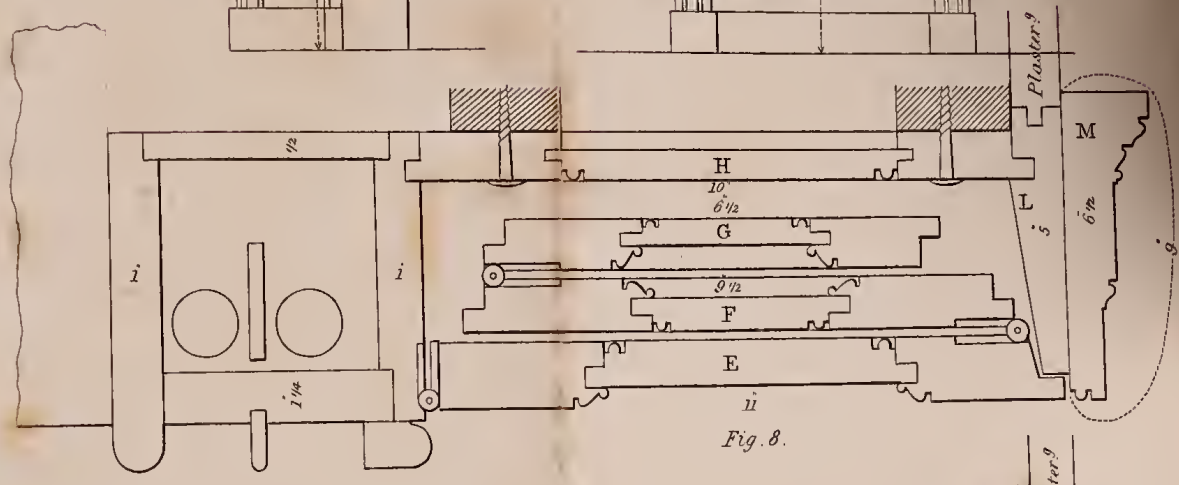
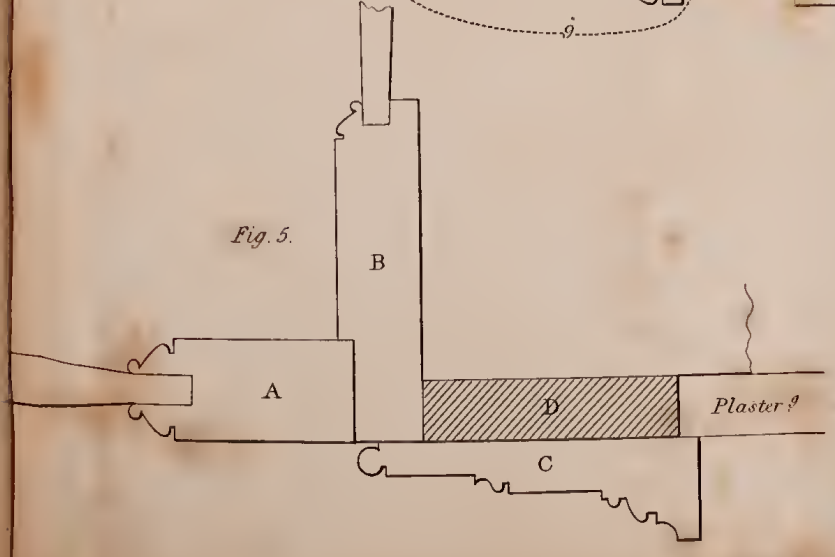
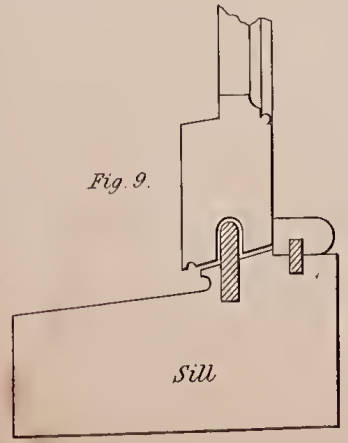


Fig. 8.





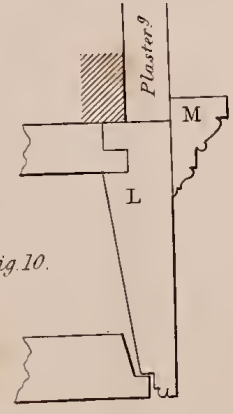
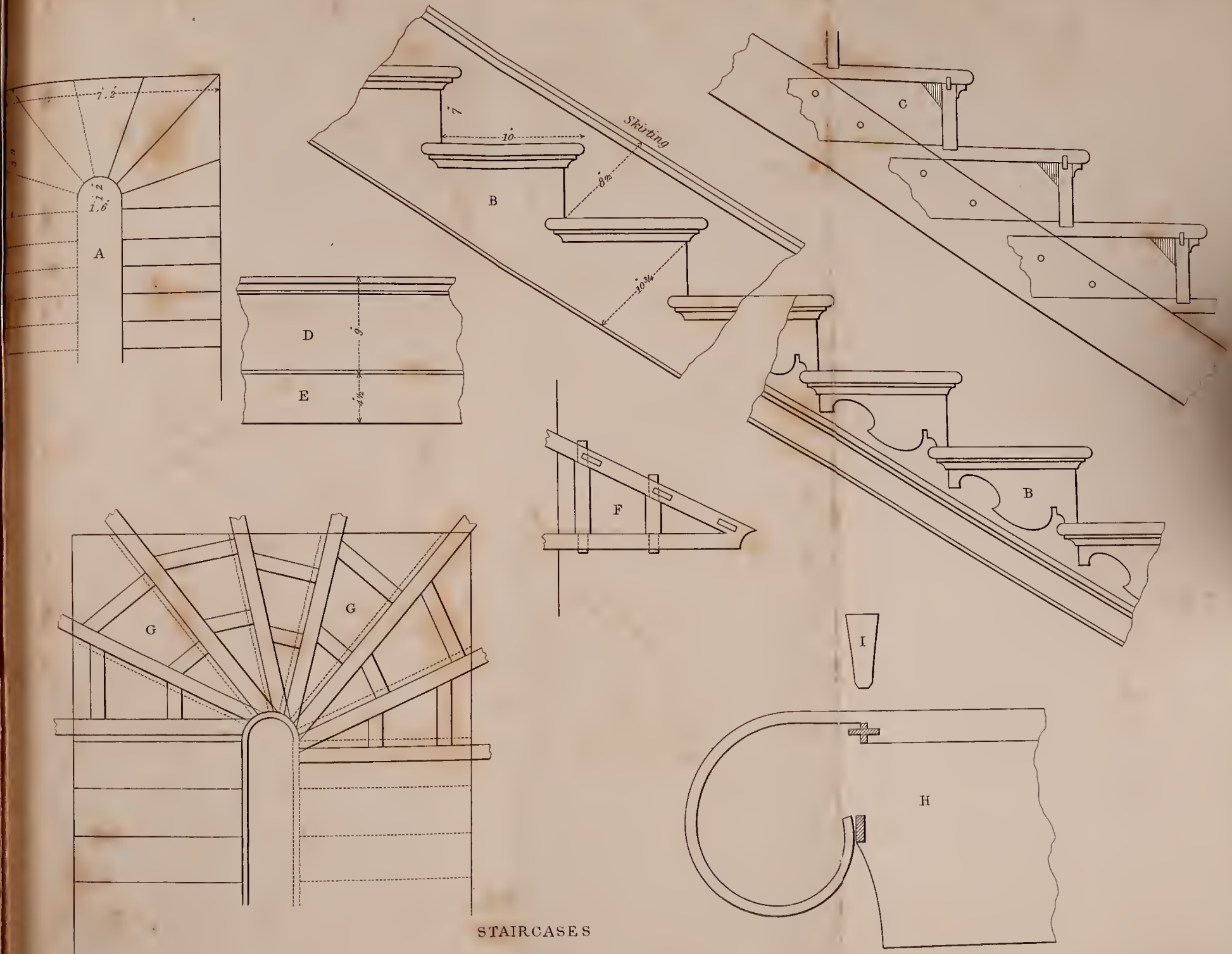


Fig. 10.

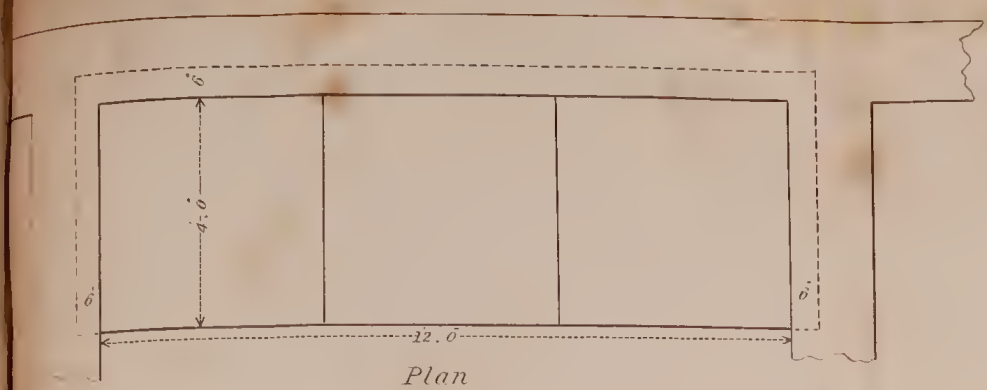
John Weale, Architectural Library, 59, High Holborn, 1843.

W. A. Beever sc

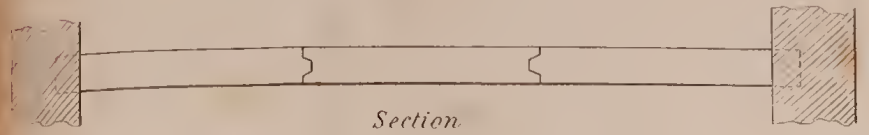


STAIRCASES

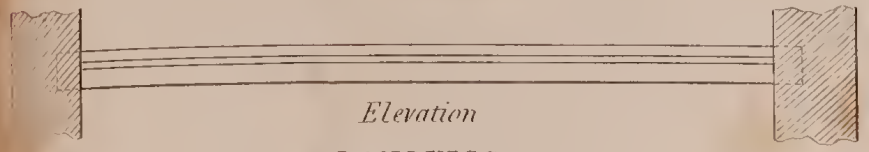
Fig. 1.



Plan



Section

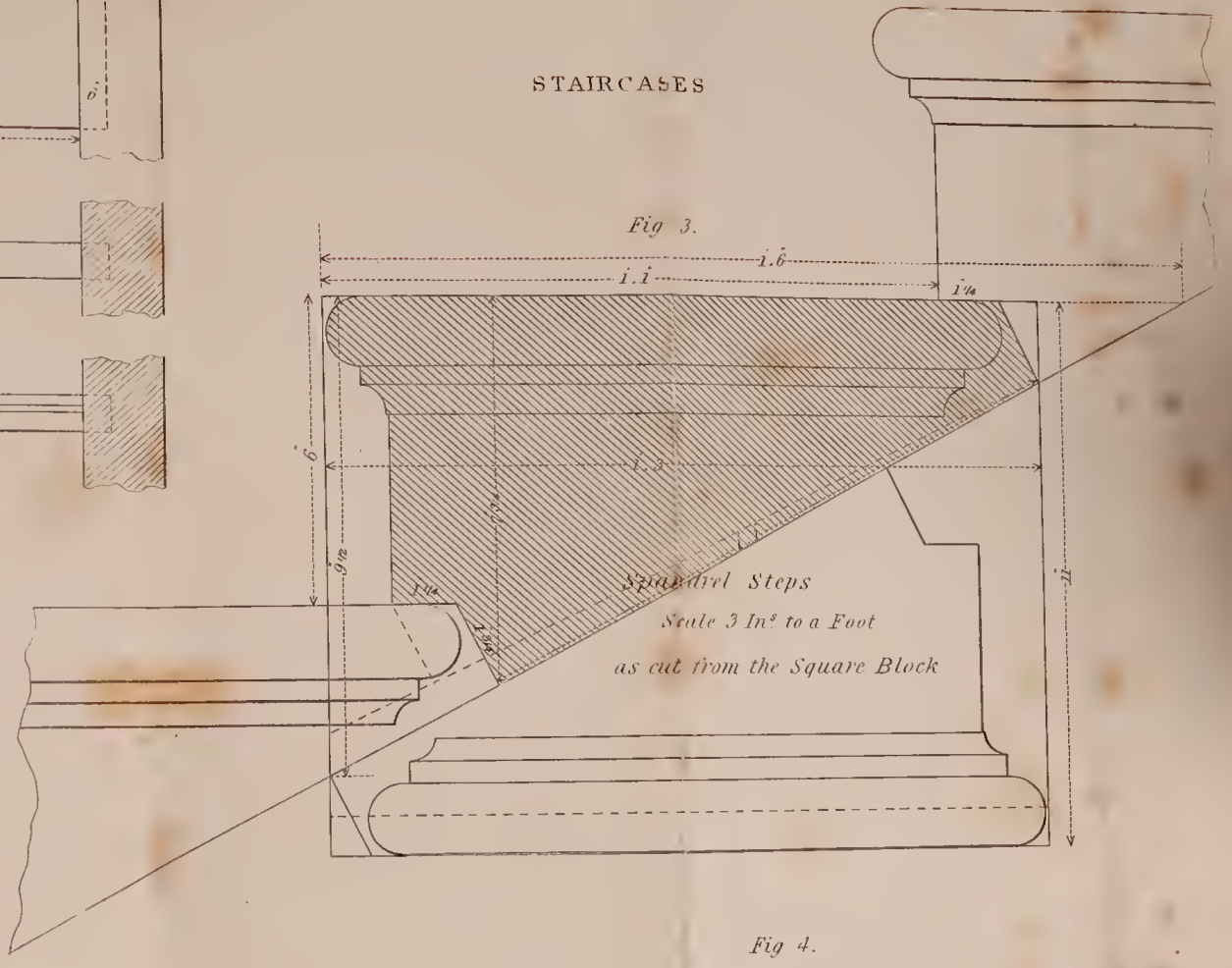


Elevation

LANDINGS

STAIRCASES

Fig 3.

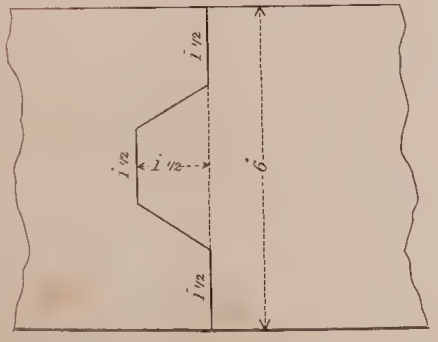


Spandrel Steps

Scale 3 Ins. to a Foot

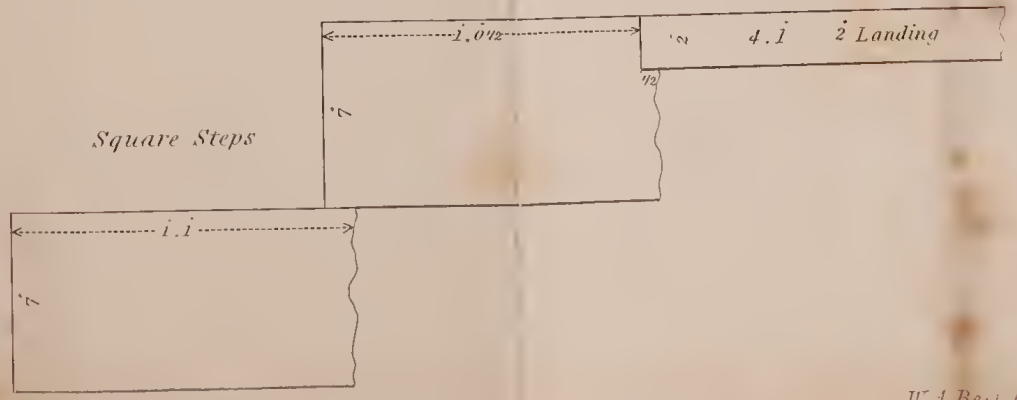
as cut from the Square Block

Fig. 2.



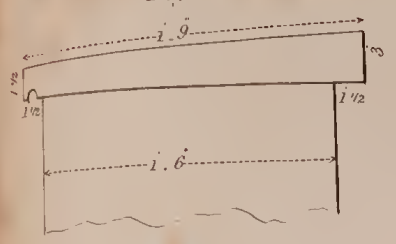
Section, shewing joggle

Fig 4.



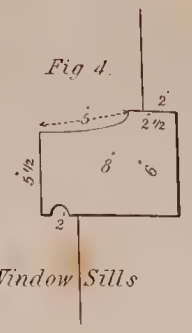
Square Steps

Fig 1.



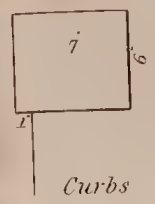
Coping

Fig 4.



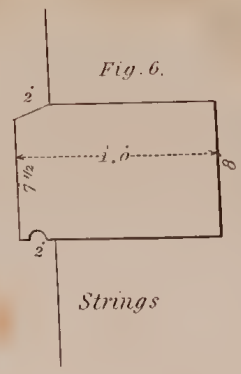
Window Sills

Fig. 5.



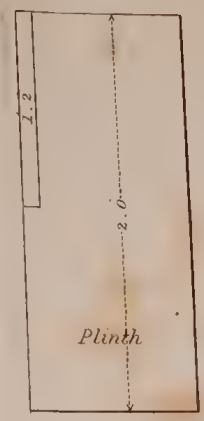
Curbs

Fig. 6.



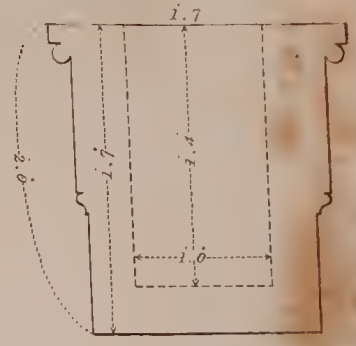
Strings

Fig 9



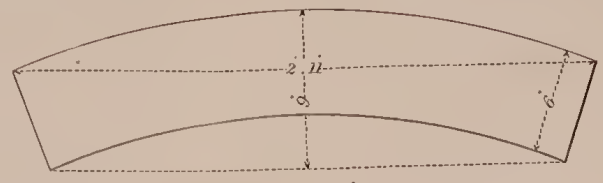
Plinth

Fig 10

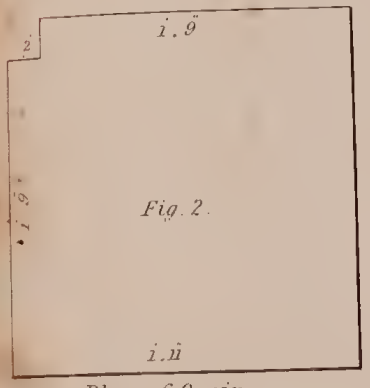


Section of Architrave

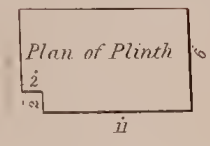
Fig 7.



Circular Curbs 6 high

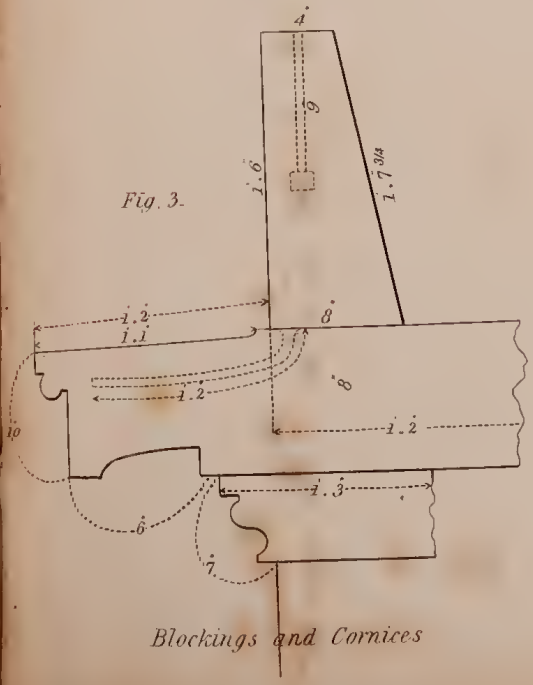


Plan of Quoin

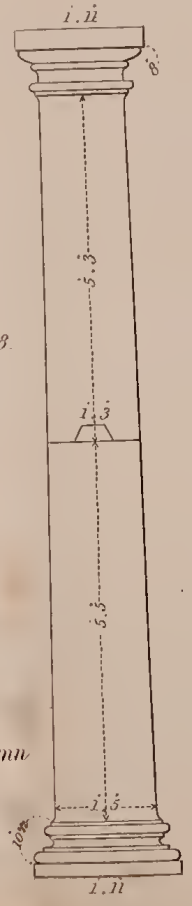


Plan of Plinth

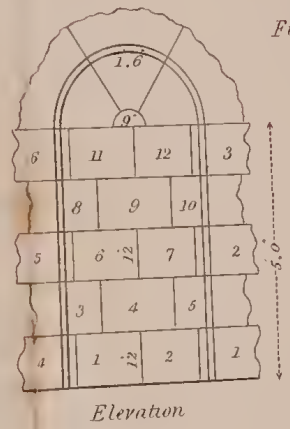
Elevation of Architrave



Blockings and Cornices

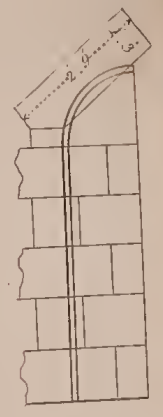


Column

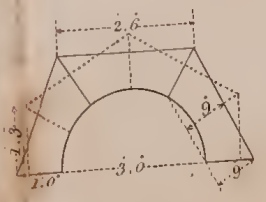


Elevation

Fig. 11



Section



Plan

NICHES

John Weale, Architectural Library, 59, High Holborn. 1843

W.A. Beever sc

Fig. 1.

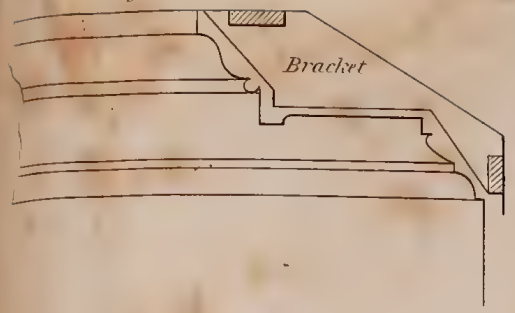


Fig. 2.

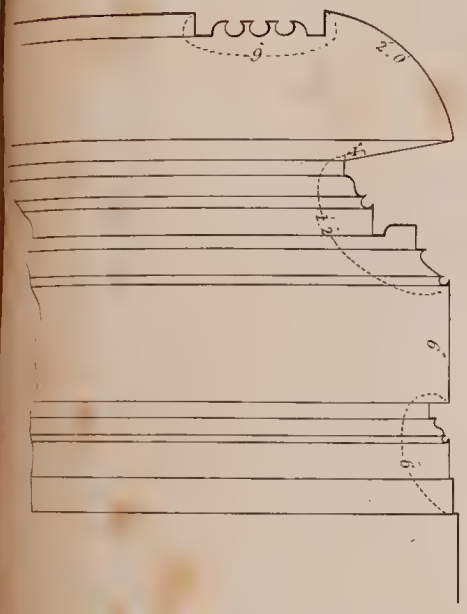


Fig. 3.

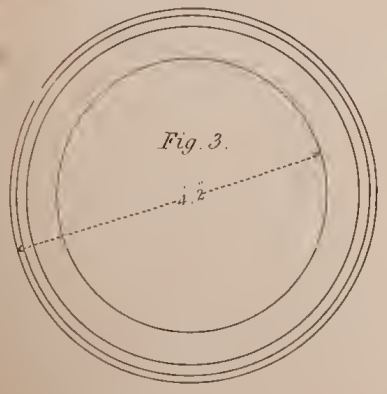


Fig. 4.

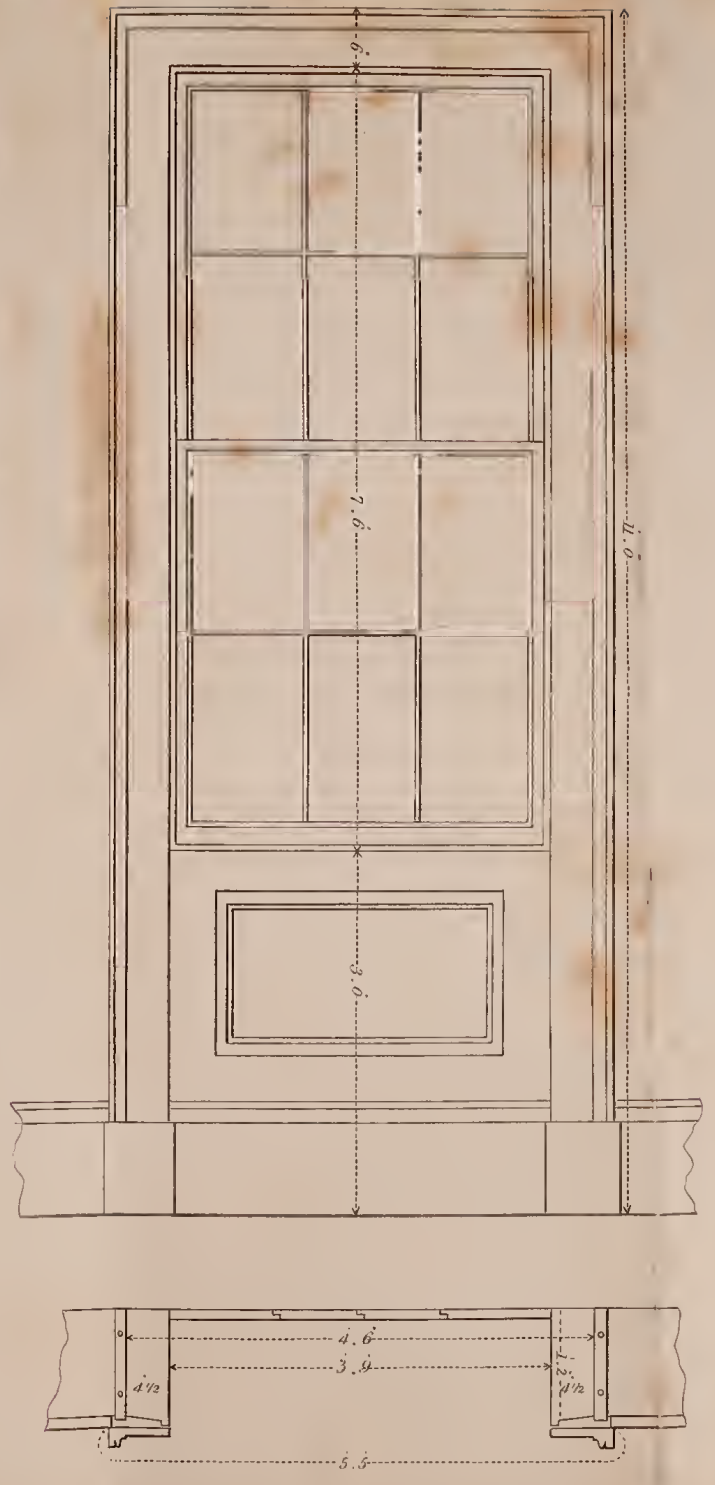


Fig. 5.